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FLYING'S DEFENSE ISSUE

Many thanks for FLYING's Special Defense Issue (FLYING, March) which certainly appears to be the best in the magazine's long and noted existence.

LEWIS S. PARKS
Rear Admiral, U.S. Navy
Chief of Information
Washington, D. C.

I want to congratulate you on the dramatic story you tell of American aviation in the special issue of FLYING. I think the work of the magazine is a real stroke of patriotism.

CHARLES J. KERSTEN
Member of Congress
5th District, Wisconsin
Washington, D. C.

I read the entire magazine with interest but must confess that I was somewhat disappointed that the Coast Guard was not mentioned on the front cover, or in your editorial, along with the other Armed Forces. It's unfortunate that your space available did not permit you to continue your format theme in preceding the article with a picture of the Coast Guard Commandant and completing the story on successive pages.

As the Coast Guard's full story of its many duties and worldwide responsibilities may also be of interest to your readers, I hope you will be able to schedule an article of broader scope next year.

L. B. OLSON
Rear Admiral, U.S. Coast Guard
Commander, Third Coast Guard District
New York, N. Y.

• *Dear Admiral. We sure will.*—ED.

I wish to compliment you on a most interesting and instructive issue. In fact, I will refer to that from time to time, I am sure. It was indeed a masterful job.

WILEY R. WRIGHT
Director, General Aviation Staff
Civil Aeronautics Administration
Washington, D. C.

You have certainly accomplished your objective in showing that unification means team work and harmony among our services; that because each has a different mission and primary functions, the team is stronger; and also that these differences may and should bring about occasional disagreement, but never disaffection among the members of that team.

As a frequent reader of your fine magazine, I expected and was gratified to find that your coverage of the aviation and air power elements within the armed forces was complete and concise. I was equally pleased to find that, although these components were documented so expertly, they did not result in a cursory presentation of the surface forces within our defense structure, but gave these services the recognition every flyer should realize. You have done a great service to our country if enough of our citizens read the March issue of FLYING from cover to cover.

EDWARD J. RENTH, JR.
Major, USAF
Asst. Prof. of Air Science and Tactics
California Institute of Technology
Pasadena, Calif.

Congratulations on the wonderful March issue of FLYING. It was absolutely the most brilliant job of editorial work I have ever seen.

DON FAIRCHILDS
Advertising Director, Lear, Inc.
Los Angeles, Calif.

Many thanks for the wonderful treatment you have given my story ("500-Mission Pilot"). I am more than honored to have it appear in this particular issue. This issue is the finest presentation of the place that Air Power must hold that I have ever seen.

WILLIAM H. GUTCHES
Captain, USAF
Stewart Air Force Base
Newburgh, N. Y.

Please accept congratulations on the magnificent Defense issue, in which, I am pleased to see, FLYING does not deny any service its aviation. Another year and another issue, I would hope to see a department on non-military aviation's role in Airpower.

HAROLD B. NELSON
First Lieutenant, USAF
Arlington, Va.

Please accept my sincere congratulations on the magnificent job you have done—again. The special defense issue is one of the finest things of its kind I have ever seen.

LEON SCHLOSS
Asst. Director, Public Relations
Republic Aviation Corp.
Farmingdale, N. Y.

Congratulations on having turned out such a remarkable piece of work. Am happy to enclose my subscription for future issues.

JAMES C. EVANS
Special Consultant
Dept. of the Air Force
Washington 25, D. C.

I have subscribed to FLYING for seven months and in those months have enjoyed it very much. The March issue tops them all.

The issue gives the public a chance to see how the U.S. has progressed through the years and what to expect in the years to come. People seem to be asleep, which they should not be. I believe if more people would read FLYING they would wake up to the fact that the U.S. has no small Armed Forces.

R. F. GREGORY
Jacksonville, Fla.

NO HARM IN LEARNING

I have read the letters (FLYING Mailbox, August and December) from Mr. Byrne and the Crash Crew from Germany. As a private pilot I would like to throw in my two bits worth.

I learned to fly just 12 miles from Moffett Field, Calif., and learned to have a high respect for military flying. Any pilot who reads articles on heavy aircraft such as the Air Force uses will find that he can learn a lot that is applicable to private flying if he will only keep an open mind.

PFC. GEORGE A. WIENS
APO 970, c/o P.M., San Francisco

BEBE JODEL

The past summer I returned from a tour of duty in Orleans, France, where I served as an Army aviator. At the Saran Air Field, from which we operated, there was a *Bebe Jodel* such as I saw described in the February FLYING.

I've seen it fly many times and can say that even though it looks very frail it can do quite a bit in the air. If my memory serves me correctly I'd say she cruises and lands at about the same speeds as our own J-3 *Cub*.

I thought you would like to have the picture I took of the *Bebe Jodel* at Orleans.

DON TOTH
State Teachers College
East Stroudsburg, Pa.

RUBBER SLIP-STICK

In "Hotrod for Jets" (FLYING, February), Bruce Smith must have been using his "rubber slip-stick." The velocity values listed in both feet per second and miles per hour do not correctly correspond to each other. For example, 820 feet per second equals 559 mph, not 932 mph as stated in this article. Also, 490 feet per second equals 334 mph, not 556 mph.

Could it be that my long time acquaintance, Mr. Smith, has been using the slide rule his Aerodynamics Department uses to calculate performance?

BRUCE O. TODD
Dallas, Texas

• *The explanation for how the far-*

(*Continued on page 64*)

He holds a traveling man's job . . . and leads a family man's life

Time was when the man who traveled for a living enjoyed precious few hours of home life. But that, of course, was before air travel came of age and TWA had a chance to become such a good family friend. Nowadays, the traveling businessman is rarely separated by more than a few pleasant Constellation Skyliner hours from those he holds near and dear. And the same convenient TWA schedules that let him start later and arrive fresher at his distant point of call help him get home oftener and earlier as well.

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PIPER
AGRICULTURAL AVIATION NEWS
PIPER AIRCRAFT CORPORATION, Lock Haven, Penna.

NEW PIPER PA-18-A DUSTER AND SPRAYER ACCLAIMED WORLD-WIDE FOR EFFICIENCY

DUSTER OR SPRAYER. In less than two hours the PA-18-A can be converted from duster to sprayer or vice versa or entire tank can be easily removed to make "quarter-ton truck" or two-place utility airplane.

Many Experienced Operators Switching From Heavier Biplanes

As the Piper PA-18-A proves itself, many large fleet operators who formerly used heavier aircraft of 300 to 450 horsepower are switching to the PA-18-A.

One Phoenix, Arizona operator comments on the PA-18-A's superiority this way: "Low cost of operation, more comfortable, less maintenance, work from shorter fields, less work for pilots, longer working time before fuel stop and many other favorable comparisons such as available parts."

A Dixon, Calif. operator says the PA-18-A puts out "as good or better dust pattern, is more maneuverable, much more economical." While at Miles City, Mont. a PA-18-A owner says his plane "is much better in all respects for our type of work."

Superior application of the PA-18-A is described by a spray concern in Tres Pinos, Calif. who claims the PA-18-A's "slow flight characteristics enable better liquid penetration to foliage.

NOW 15 GALLONS PER ACRE

Much of the success of the PA-18-A has centered on the highly efficient dispersal equipment developed with the cooperation of several agricultural test centers. The venturi has a highly-advanced aerodynamic form to give good dust dispersal side-wise and downward while the wind-driven agitator provides uniform flow.

Liquids can be dispersed at rates ranging from 15 gallons per acre to one-half gallon. A very efficient, heavy-duty pump system provides proper pressure which the pilot can adjust. Positive shut-off control assures accurate coverage.

SEND FOR BROCHURE ON PA-18-A

For full details on the remarkable Piper PA-18-A send today for free brochure to: Piper Aircraft Corp., Lock Haven, Pa., U.S.A., Dept. G-5.

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Piper Builds Record Number of Planes in 1952 For Chemical Application

After a year in service with agricultural chemical applicators throughout the world, the Piper PA-18-A duster and sprayer has been enthusiastically accepted as ideal for seeding, fertilizing, defoliating, insect and weed control, and the aerial application of chemicals for many other purposes.

Thousands of Pipers in Use

Developed from lessons learned with the thousands of Pipers previously converted to dusters and sprayers, the PA-18-A is the only agricultural airplane in the world now in volume production. It was developed from the famous Piper Super Cub by a special agricultural development division of Piper's engineering department.

Operators all over the world were consulted, their requirements studied. Since then comments and lessons learned in last year's PA-18-A have been incorporated in the new 1953 PA-18-A for even more efficient operation and the most effective dispersal of a wide variety of chemicals at varying coverage per acre.

135 Horsepower Lycoming

With 135 horsepower, the PA-18-A can land and take off where other planes can't operate. High lift flaps give short, heavy-load take offs, slow landings, and excellent downwash for good penetration. A heavy-duty hopper holds 110 gallons of liquid or 18 cubic feet of dust. Dispersal booms for spray or venturi unit for dust are interchangeable giving the plane dual utility. An average swath of 50 feet provides excellent coverage.

Many Safety Features

Safety features, in addition to the PA-18-A's superb climb and maneuverability, include shoulder-harness and wire cutters on the landing gear. The 135 Lycoming engine sets an unmatched standard for dependability. Maintenance and servicing are kept at a minimum to provide excellent reliability.

In addition to wide use in all sections of the United States, the PA-18-A has been put into service throughout the world controlling plagues and helping improve crop yield.

YOU'LL find it's a pleasure

to fly the TRI-PACER

Once you fly it you'll know why — flying ease for peace of mind, comfort and quiet for relaxed flight, modern navigation aids for cross-country ease, fast cruising speed for real utility—all at remarkably low price!

For the Super Custom Tri-Pacer with full equipment costs less than any other four-passenger plane *bare!* With full gyro instrumentation, omni-range equipment, VHF and LF radio, and many other standard "extras" this new 1953 Tri-Pacer is the most outstanding aviation value ever offered!

The Tri-Pacer gives you two other important "extras." *Number one*—the modern tricycle landing gear, like every jet and modern airliner, that gives you virtually automatic landings and take-offs, lets you fly in higher winds. *Number two*—simplified controls that let you fly with wheel alone or just your feet.

Here at last is a plane that gives you better than two-mile-a-minute cruising speed with extreme flying ease and unmatched economy. It's the reason why many in business, professional and farming ranks now find their own airplane a safe, practical, profitable investment.

See and fly the great new 1953 Tri-Pacer at your Piper dealer.

EVERYTHING STANDARD

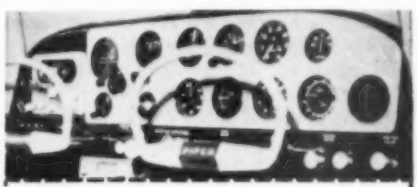
on the Super Custom Tri-Pacer, still priced less than any other 4-place plane *bare!*

You get this big man-sized baggage compartment with outside door; full instrumentation including gyro horizon, Narco Omni, 4-channel VHF transmitter, VHF and 2-band LF receiver, homing loop, cabin speaker, landing lights, 135 horsepower Lycoming engine.

All in optional two-tone color schemes with luxurious interior.

PIPER

ALSO THE SUPER CUB—famed 2-place utility plane. Takes off and lands in 50 yards; and the PA-18-A duster and sprayer version. Carries up to 750 pounds of chemicals. Send for separate Super Cub and PA-18-A brochures.



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FLYING
VOLUME 52, NO. 5
MAY, 1953

AN EDITORIAL

Billion-Dollar Questions

AGAINST the broad background of national defense as processed by the White House, the Congress, the Bureau of the Budget and the Defense Department are significant details which speak volumes to the citizen airman.

Knowing the cost of air defense, he wonders if the American pocketbook can continuously stand the pressure without reorganization of the whole military structure . . . unification in reality.

Conscious that airpower is the central theme of security, the airman wonders, too, whether the Air Force Chief of Staff, General Hoyt Vandenberg, will succeed in turn to the Chairmanship of the Joint Chiefs of Staff.

Will the 83rd Congress allocate funds to establish the already authorized Air Force Academy?

Will life be pumped into the Air Reserve by provision of aircraft for flight training?

Can the Reserve Officers Training Corps be made a productive source of future pilots by addition of flight indoctrination for the Corpsmen while still in college?

When will the Air Force begin to take a real interest in the Civil Air Patrol?

Will the Administration restore incentive to the aircraft industry by removal of discriminatory provisions against fair profits?

Such are the questions which arise wherever hangar flying is done. To those of us on the outside looking in, the answers reveal how blows the wind on the subject of our survival.

And though many of these ponderables are details of the whole problem, they must make some sense.

Take, for example, the question of the succession of General Vandenberg to the Chairmanship of the Joint Chiefs. To appoint the Air Chief because it is the turn of the Air Force to have the implied honor would be a superficial gesture. The security of the land cannot be auctioned to inter-service priorities.

But it is sound sense to recognize that, since airpower is budget-wise and strategically and dynamically so great a part of total defense, an able airman might render exceptional service to the Joint Chiefs. And it is sound sense to recognize that Vandenberg is a great leader whose abilities even this nation cannot afford to retire.

On the subject of the Air Force Academy, it would seem that Congress should act immediately. The writer is one of those who had hoped that a career Academy would not prove necessary to the Air Force. Experience since the establishment of the Department leaves that hope without foundation. Evidently nothing can replace such an Academy as a molder of character for military career and as a constant source of supply for highly qualified youth. The idea that West Point and Annapolis might suffice for the Air Force never was sound.

Reflecting on the subject of flight training for Reserves and R.O.T.C. . . . an eastern college president recently told the editor that the present flightless program of both groups is a sharp contradiction of the inherent qualities of human nature.

True, funds have had to be concentrated on production of a combat-ready Air Force for a not distant deadline. This is an absorbing job but it should not be the exclusive job. A one-punch fighter is a poor bet.

Soldiers, sailors and airmen are molded by action. Canary bird procedures won't produce eagles. The battle to get the American boy into the air must precede the battle to get the enemy boy out of the air.

And finally, as far as reorganization of the defense structure is concerned, can we afford adequate defense stature under present organization patterns? Is it true that inter-service competition is healthy? Sure, everybody says so, but that does not make it true. Certainly competition is beneficial in business and industry where self-interest is the frank objective. But where the common objective is selfless service to the Country would the theme of cooperation not be more appropriate than the theme of competition?

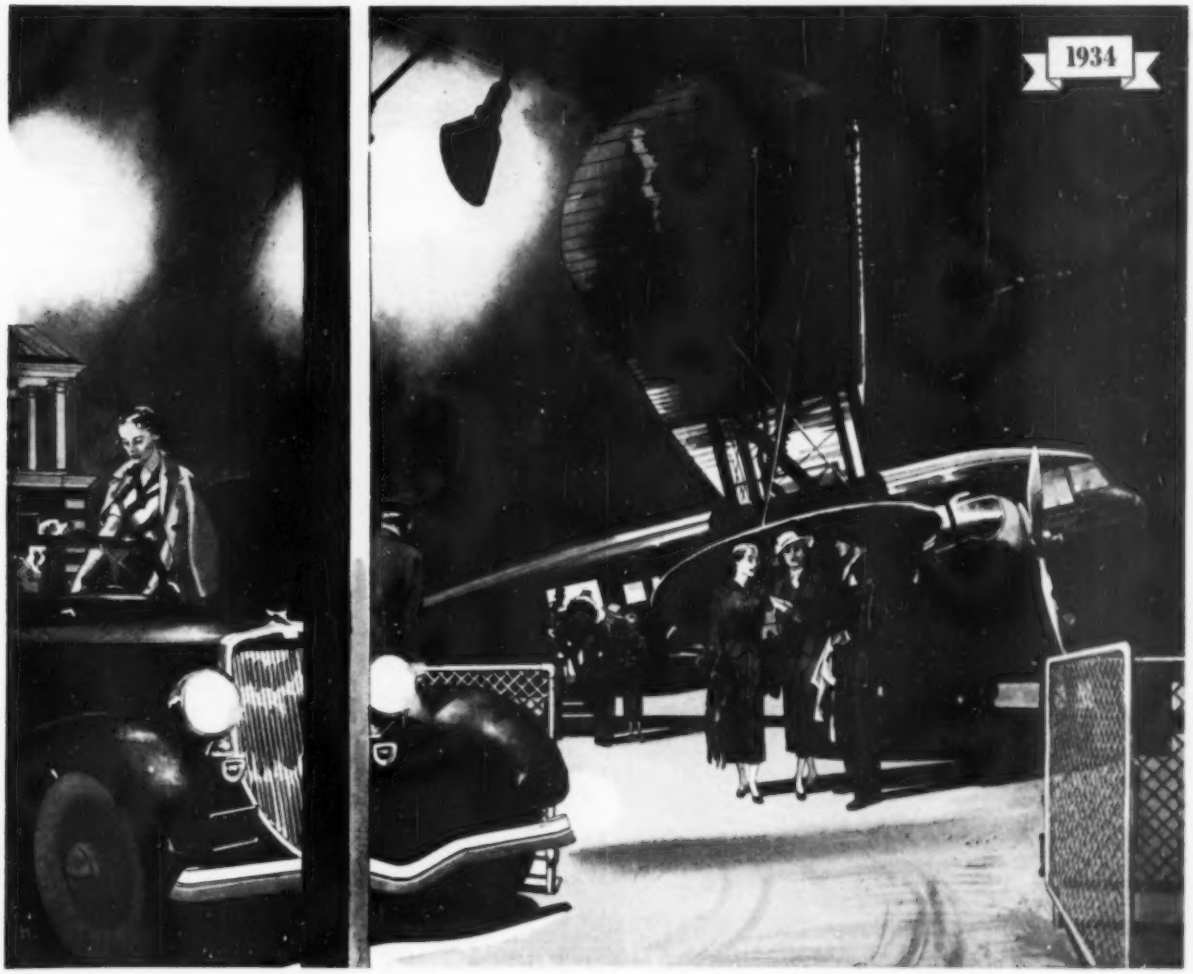
If this proved to be the case, then perhaps the way to economy in defense would be through one Army, one Navy, one Air Force, one uniform, one promotion list, one Chief of Staff . . . one loyalty without discriminations.

We on the outside looking in have no way of computing all the angles and facets of the total defense.

It still remains ours to be lucid in questioning, and coherent on the various facets of the entire subject according to our lights.

Gill Robb Wilson

Gill Robb Wilson
Editor and Publisher



The Sleeper Plane that "WOKE" the traveling public

American Airlines pioneered in the development of the sleeper plane for coast-to-coast service, introducing it in May 1934.

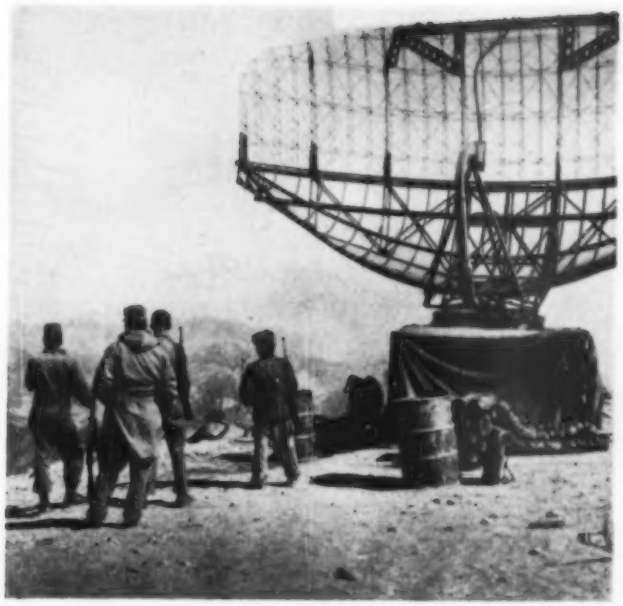
Sleeper service proved to be particularly important to the growing airline industry at that time. For it literally "woke" the public to the fact that air travel, with its tremendous time-saving advantage, could also match every standard of comfort and luxury offered by surface transportation.

Many transportation officials were frankly dubious about the potentialities of sleeper planes, but mounting popularity and public demand soon wiped away all doubts. Other airlines, taking their cue from American's success, began to install berths in some of their own long-haul aircraft.

The inauguration of sleeper plane service is only one of many milestones in the history of air transportation that have been introduced by American Airlines.

AMERICAN AIRLINES INC.
Americas Leading Airline

Right, from rugged vantage points such as this, members of the 502nd Tactical Control Group perform varied services—from directing interceptors toward southbound MIG's to guiding friendly planes home in bad weather.



Above, at his radar outpost station, Lt. R. A. Thornburg directs a flight of *Sabrejets* to intercept a flight of MIG's. *At right*, minute by minute progress of 5th AF strikes against targets in North Korea is plotted on a grid map in a USAF Tactical Air Control Center.

"Scope-heads" they're called—
the wizards who interpret the blips on
well-hidden radar screens in Korea

By JOSEPH W. VOLNEY

Radar Aces

◀

From this mountain top Radar Air Direction Post in Korea, skilled operators serve as "eyes and ears" of the 5th AF.

"SOMEWHERE in Korea" is a tortuous mountain road that leads to one of the amazing, partially secret operations of the Fifth Air Force.

It is an operation focused on MIG's and *Sabrejets*, on parachuting pilots and rescue aircraft, on massive fighter bomber strikes by day, on *Superfort* attacks in the hours of darkness . . . even on a flight of geese winging south.

The tactical control of farflung warcraft from a centralized point by means of radar and radio is strictly the private accomplishment of a small and highly specialized group of U. S. Air Force officers and airmen. Designated the 502nd Tactical Control Group, they have contributed directly to the highly successful operations of the Fifth Air Force against the communists.

The scope of their operations is limited only by the range of their network of scanning radar antennae. At times their operations lead to spectacular results.

Take the case of First Lt. Harry L. Shumate, who said his goodbyes in Port Huron, Mich., to become an *F-86 Sabrejet* pilot. Flying with other 51st Fighter Interceptor Wing pilots in a flight under the tactical radar control of the 502nd Group, engine failure forced him to abandon his aircraft in Red territory.

His radio distress call was picked up immediately by First Lt. Robert A. Thornburg, of Chatta- (*Continued on page 58*)

FLYING DOWN TO RIO

The red tape rivals the romance, south of the border.

By AL HUNDERE

THE altitude of our airliner was 20,000 feet and we were over the Andes where there is much ground above this altitude. La Paz, the highest commercial airport in the world, at 13,400 feet, was just ahead. I was returning to the States after 18 months in Brazil. Although I was looking at the scenery I wasn't enjoying it as I should. I had sold my little Cessna 140 in Sao Paulo the day before. It now seemed as though I had left my best friend behind.

The author at Rio, with Sugar Loaf as background.

I had much time to think before the flight ended in Miami. Highlights and statistics of my trip down went through my mind:—9,316 miles from San Francisco to Rio; 22 days required for the trip; 27 landings and 20 towns where I stayed overnight; the forced landing on the beach along the Columbian jungles and the natives who spent the night with me; landing on the Pan American Highway; the hop of 715 miles from Arica, Chile, to Vallenar; the flight over the Andes at 15,000 feet through a pass with the mountains towering 8,000 feet above; 15,000 miles of flying in Brazil; getting lost over the Brazilian jungles. It had been 18 months of never-to-be-forgotten experience.

The story began when the Brazilian government offered me a contract to assist in setting up an aircraft engine laboratory at an aeronautical center they are attempting to establish. I accepted. My flying up to that time had been almost entirely Sunday flying around the local airport. I had an urge to make a truly long cross-country flight.

I left Buchanan Field, near San Francisco, on June 27. Clearing with US Customs at Calexico, Calif., I jumped just across the border to Mexicali and checked in with Mexican officials. One must make sure that his first landing in each country is a designated Port of Entry, so marked on flight charts.

My stops were San Diego (472 miles), Mexicali (103), Hermosillo (384), Mazatlan (509), Acapulco (686), Tehuantepec (356), San Salvador (449), Managua (233), David (373), La Mesa (88), Rio Hato (73), Panama (72), Esmeraldas (705), Guayaquil (250), Chiclayo (394), Lima (412), Pisco (130), Arica (523), Vallenar (715), Mendoza (460), Buenos Aires (611), Porto Alegre, Brazil (553) Florianopolis (233), and Rio (532). This is a total of 9,316 miles.

The two greatest thrills of my flying career were part of this trip. One was the flight over the Andes, the

other was flying over the entrance to Guanabara Bay with all the sights of Copacabana, Sugar Loaf, and Rio.

Officials and Red Tape

Although weather gave me considerable trouble, my major problem was officials and red tape which cost me just about as much as gas and oil. Other private pilots who have flown to South America have heartily confirmed this opinion. If I had known Spanish my difficulties probably would have been somewhat reduced. Even in the smallest town, however, I found English-speaking people. In 13 of the control towers English-speaking operators answered my calls.

I had flight permits, obtained through the AOPA service, for all the countries in which I intended to land. My bills for the telegrams required was $120, however. After going to this expense to obtain my flight permits I found that the officials at most of the airports were not interested in the permits. When they were, they usually asked only about my permit for the country that was my destination. When I had to make an unscheduled landing because of weather at Managua, Nicaragua, a country for which I had no flight permit, I cleared with officials as easily as in any country for which I had a permit.

The Mexicans gave me less trouble and took smaller bites than the officials in the average country. I did bypass Tapachula, the customs airport where one is supposed to check out of Mexico. I had been told that the take for officials at this airport was $20. The papers I was supposed to have left at Tapachula I mailed to the Mexican Customs, with a note that I couldn't find the airport. This is described as "standard practice."

Eventually I learned the two rules that are the key to freedom from trouble with officials. The first rule is that officials respond only to money or the equivalent. Cigarettes seem to bring better results than dollars. In making the trip again I would carry a minimum of one carton of cigarettes for each (*Continued on page* 42)

How to buy

In the market for a used plane? Take heed! Forewarned is forearmed.

By SILAS H. WELLMAN

BUYING a plane should be an experience bringing joy and excitement to the proud purchaser. The pilot who buys without looking into *all* the factors involved can get into trouble, however. On several recent occasions, I have seen alert, well-informed and well-intentioned pilots bitterly disappointed with what they had considered "careful" purchases.

If you are an A & E mechanic, familiar with CAA Mandatory Notes, the recent operating history of numerous types of aircraft and their engines, and are fairly expert on aircraft inspection procedures, you should skip this article and do as you see fit.

If you do not fit the above category and wish to buy a plane and get your money's worth, you will probably be ahead if you hire someone who is familiar with such things to do your inspection for you.

A & E mechanics do not work for nothing, and it will cost you something to get one to check a plane for you, whether or not you finally buy it. This money is not thrown away. If you buy the plane, you will know what you are getting. If it needs relicensing, the pre-purchase inspection will apply toward the required 100-hour check for relicensing.

If, as a result of this inspection, you decide not to buy the plane, you may have saved several hundred dollars by investing 10 or 15 dollars for a few hours of an A & E's time. Don't try to get the price too low for there are quite a few items for him to check. These items are so numerous and of so varied a nature that it does not seem reasonably possible for anyone, not a professional in aviation, to learn them all.

A few items of vital importance to you as a prospective purchaser are:

1. Status of the title and liens against the aircraft;
2. Mandatory notes not complied with;
3. Condition of the fabric;
4. Corrosion of metal covering and other parts;
5. Present market position of this type of aircraft.

You will notice that we have barely started on the physical condition of the aircraft; yet any one of the above items could mean that an apparently excellent plane was of real interest only to a dealer in junk parts.

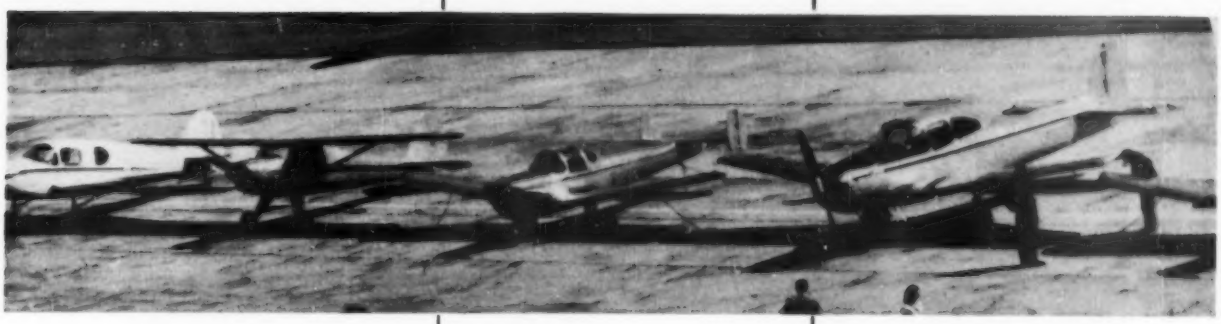
A few examples of what is happening every day to pilots who buy without professional advice or who disregard such advice will illustrate this point.

Recently, an acquaintance of mine purchased an airplane which appeared to be in excellent condition. He paid over $400 for it on being assured by the seller that it would relicense for $35. When relicense time came around, he took it to a well-known A & E in Buffalo, N. Y., and asked him to do the work—explaining that he understood that the cost would be around $35. To his amazement, the mechanic declined to touch the ship at any price. I asked the mechanic about this case and here is what he said.

"The cheapest relicense job I have ever done on that type of ship cost the owner $150. In this case I knew, from previous association with the aircraft, that all the main landing gear and tail wheel bushings would have to be replaced, and the wing required a major repair due to dry rot. That's over $200 worth of work without even inspecting the ship! In my opinion, if that poor fellow had had the plane given to him, it still wouldn't be worth the cost of relicense."

That may sound like an extreme case, but it is not nearly as extreme as it seems. A good friend of mine recently got into even worse trouble, but in a different way.

He had a chance to pick up a used plane that was being sold for approximately $250 for back hangar rent. The fabric had only about one year to go before re-cover but, even so, it looked like a terrific (*Continued on page* 60)



How to sell

Planning to sell your plane? En garde! Forewarned is forearmed.

By NORMAN LEE SEWARD

BEING a salesman by profession, I was at a decided advantage when I placed the ship that I acquired at one seller's expense up for sale after a little over a year of good service to me, my family, and my business. I would like to pass on to you, the prospective seller of your own plane, a few tips on the proper arming of the aircraft owner who wishes to put his plane up for sale.

As I have stated, I am a salesman, and as such I have studied salesmanship, economics, and marketing for nearly 17 years. In the language of my profession, let us first consider the salesman and his product—in this case, you and your plane!

Learn all that you possibly can about your plane. Study it all the time you are with the ship, both in the air and on the ground. Learn all its faults, shortcomings, and failures; most important of all, learn its virtues and its outstanding qualities.

While flying, check speeds, both cruising and top. Find the best gliding speed, and feel out your landing speed, with regular and wheel landings.

It is of value in small, single-engine ships to learn the exact slow flight characteristics and performance. Check your stalling speed, both power on and off, as well as your best climbing speed and rate of climb. Also, it will be necessary to check the plane's operation under different weight, load and weather conditions.

Check all the above carefully.

Before the prospective buyer looks over your ship, clean it up. A little polishing, sweeping and spot removing can't hurt a bit, and will mean extra dollars in your pocket. Clean out the cabin, and don't forget to clean the windshield.

A bit of oil here and there, especially around control surfaces, will improve the plane's ease of operation, so get out that old oil can and warm up on your aim.

Having prepared the product, let's now consider you, the salesman.

Be sure you make a neat appearance when representing your product. Your personal appearance should be neat, not gaudy. Spend as much time scrubbing and shining yourself as you do your plane.

A sale will invariably call for one or more check rides. Let the prospective purchaser of your craft handle the controls if he is a pilot. If not, it is up to you to make the ship look and act its best for the groundling.

Consider the prospective customer as a single personality, not as just as another "Joe." Remember that he has personal likes and dislikes about every little thing, and it is up to you to allow for these things. Nevertheless, remember that he may actually be just as anxious to buy as you are to sell and a certain firmness is essential.

It is necessary to be sure of yourself, but to be cocky is more costly a mistake than to be shy. Most of all, you must remember to be courteous, even to the point of exaggeration, as nothing today makes quite as favorable or lasting an impression as courtesy.

Now, let's get down to the sale of your plane.

Let us assume that you are selling a modern and popular type of lightplane. Whatever you want the prospective purchaser to consider most, you must impress upon him most. Speeds? Stress the high cruising and top speeds of your plane, and don't forget to mention its comparatively slow landing speed. Economy? Be sure to mention the economy of its small but powerful engine, both in the purchase cost, in the operation and in the maintenance. Comfort? Don't overlook the finer appointments of the ship. Mention its beautifully upholstered cabin; the clean, neat arrangement of instruments and controls; their ease of operation; the smart, pleasing lines of the ship itself.

All this brings to mind again (*Continued on page* 59)

Philly to Palm Springs

April 25 is take-off date for the big cross-country lightplane cruise.

By ARTHUR V. TURNER

SATURDAY turned out to be quite a day. No, the flying wasn't so good—the ceilings were low and a cold December drizzle eliminated all thought of flying this particular afternoon. But it was a good day just the same.

Plans were now completely outlined for the Transcontinental Handicap Air Race to start at 11 a.m. Saturday, April 25, 1953. Judging from the elaborate and careful planning, it was apparent that we would have an outstanding event of interest to private fliers everywhere.

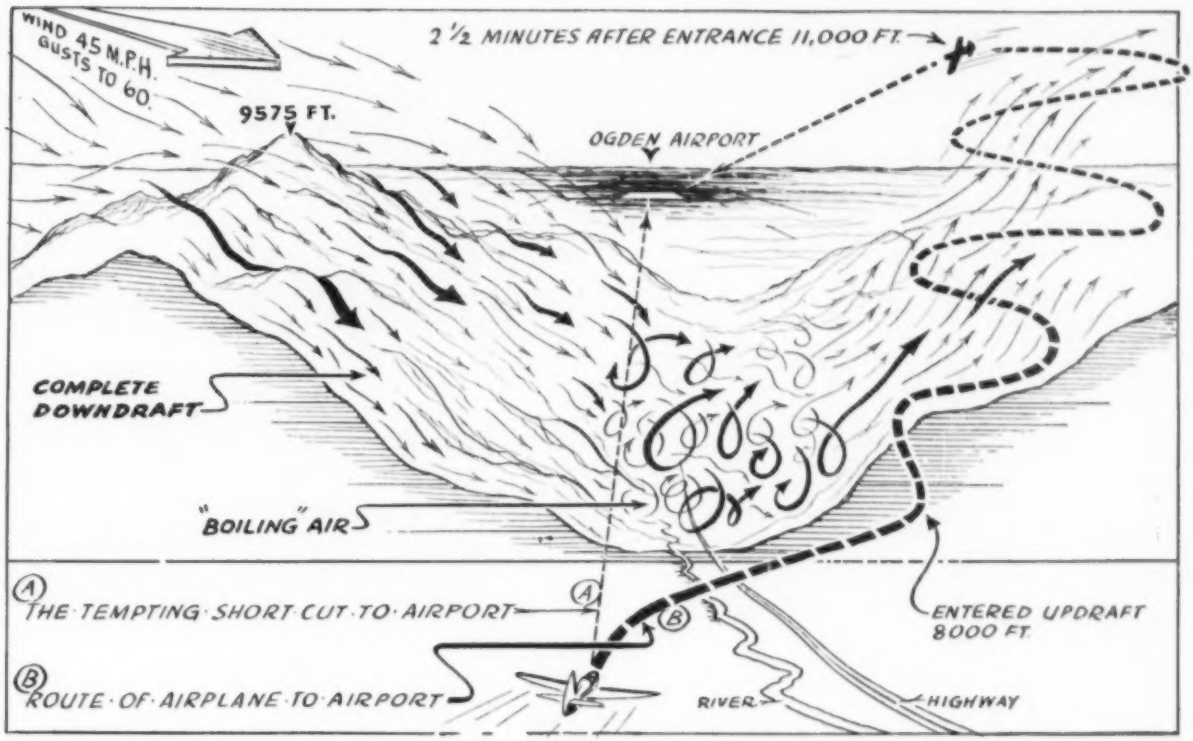
The members of the Philadelphia Jr. Chamber of Commerce were organizing this, the first annual Transcontinental Handicap Air Race under their sponsorship. The route was selected, official airports assigned, rules and regulations for the race completed and approved, parties arranged for in Tulsa, Okla., and Phoenix, Arizona. It was decided to take advantage of the offer of the Desert Air Hotel at Palm Springs as termination point.

My enthusiasm for this contest originated with a similar event in which I participated two years ago. Ever since I had had hopes that some organization would sponsor another event on a much larger scale. After all, where is the private plane owner who wouldn't want to participate in a Coast to Coast flying trip as a vacation, with an opportunity to match his abilities with a large group of other private pilots?

Clark Hopkins caught my bug at an early date and his enthusiasm for planning a wide scale tour grew with every hangar flying session. Clark, past president of the Philadelphia Jr. Chamber of Commerce, suggested that the Jr. Chamber would be the ideal organization to sponsor such an event. The Jaycees have over 300,000 members and hundreds of chapters along the proposed route. They are an energetic group who, through their Aviation Committees, have done much for private flying and are constantly interested in ways and means of improving the flyer's lot.

It took only a couple of meetings with the Philadelphia Chapter to gain their complete approval of the idea. Next item was to obtain the interest (*Continued on page* 62)

Making plans for the 1953 Transcontinental Handicap Air Race are: (l to r) Max Karant, AOPA; Clark Hopkins and Jack Lohrman of the Philadelphia J. C. of C.; Jack Davidson, secretary of the Air Race Committee; Arthur V. Turner, winner of the 1951 race, and Ted Higgins of the J. C. of C. Picture at top shows the Desert Air Hotel at Palm Springs.



Power Soaring

It's safe, it's fun, it's cheap—AND IT'S POSSIBLE.

By FREDERICK W. RUBLE, Jr.

A CULVER *Cadet*, like every other light airplane (up to and including the DC-3), has one feature that is almost never called upon. It is the ability to SOAR—and over any type of terrain, soar it will!

My wife and I recently purchased a standard Culver *Cadet* in order to enjoy cross-country trips over short holidays and week ends. We felt that we could economically fly our own lightplane cheaper and faster than we could drive and could have a world of fun. This has proved to be correct.

Our first adventure was to fly from Denver to Edgerton, Wisc., some 1,100 miles, in six hours for a total cost of $11.50. The answer—air currents.

Our next adventure took the form of soaring the Culver from Denver to Sacramento, Calif., using only $18 worth of gasoline and oil. Preposterous? No! We simply let Old Mother Nature have her way.

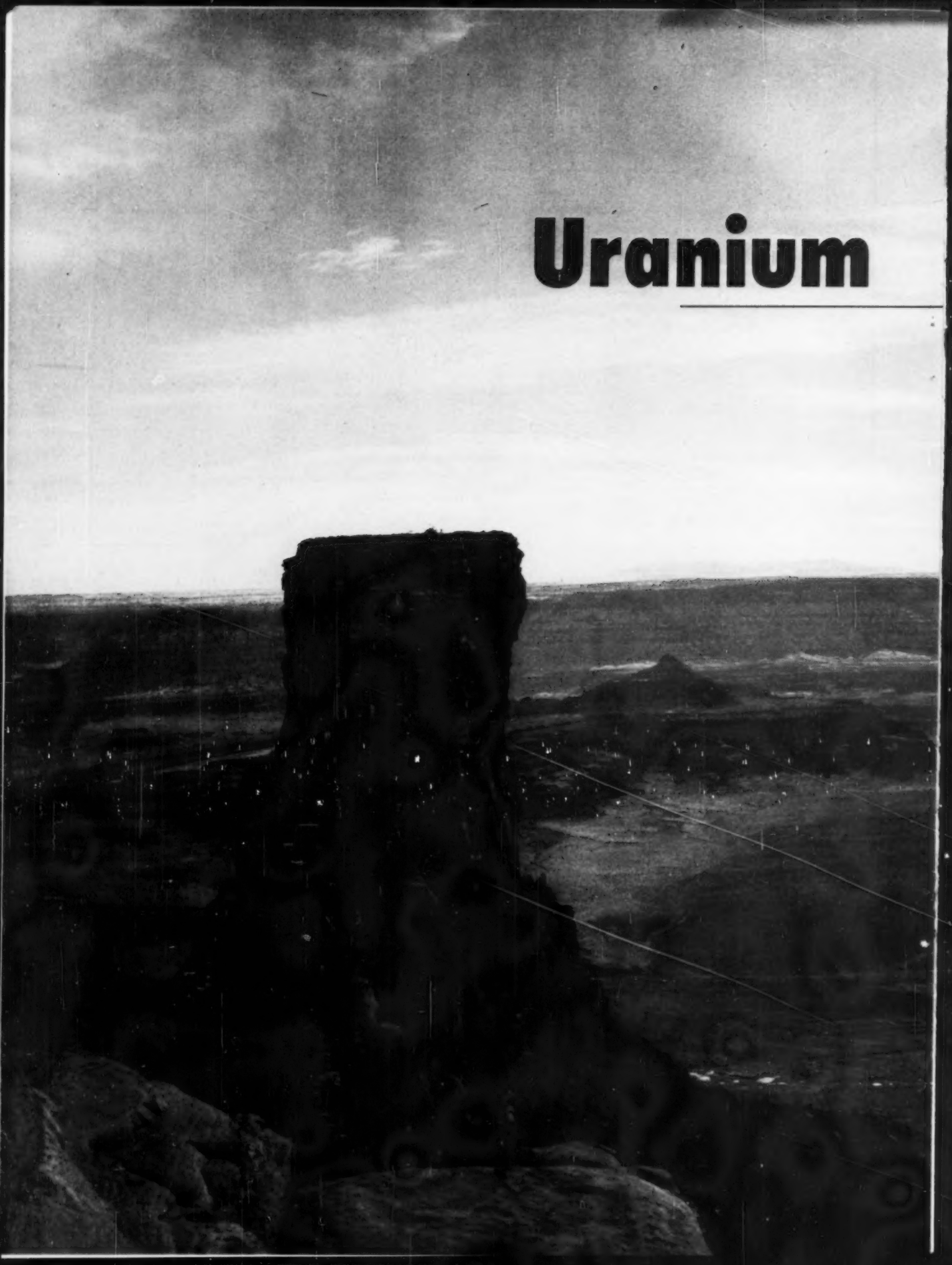
I might add here that I operate a glider school in Denver and may be a bit more familiar with air currents than the average power pilot; but I would also like to point out that soaring is so very simple that anyone who flies either has experienced forms of it, or is simply not interested in economy.

Over all types of terrain the air is full of rising and descending air currents. How to utilize them? Simply slow down and circle within the UPS and fly quickly through the DOWNS. A cumulus cloud often climaxes the top of the UPS or thermals, and wherever a horizontal series of cumulus cloud, or "Thermal Street," appears near your course, you can simply fly under it and throttle back.

Our course from Denver to Sacramento was planned via Rawlins, Ogden and Reno, which permitted us to avoid most of the high mountains. One advantage of soaring: it teaches one to avoid unfavorable odds, such as flying light, single-engined planes over terrain too high to climb comfortably above without utilizing air currents. It's easier to *stay* out of trouble than to *get* out!

Fred and Margie Ruble, with their Schweizer sailplane. Margie, a pilot herself, collaborated with Fred in preparing this article.

Our first gas stop, at Rawlins, proved to be the actual beginning of our western "soaring" flight. The field elevation here is 7,500 feet. Too high? No, but with a fully loaded lightplane it wasn't easy to look up the runway toward the mountains and relax on (*Continued on page* 56)


Uranium

This is the first in a continuing series illustrating aircraft at work.

Survey

By BOB SUNDWALL

THE age of the atom has introduced to Southeastern Utah a booming new interest—uranium. A vast desert area, long dismissed as wasteland, is today regarded with keen interest by prospectors, by mining firms and by the Atomic Energy Commission.

The splurge of prospecting activity resulted at the outset in the locating of several uranium claims on the fringes of the desert. Sharply graded roads were built and trucks precariously hauled the ore to nearby mills.

Early progress was difficult, however, and most claims were located by chance. Prospectors lacked a practical guide to systematic research as they wandered through uncharted canyons and valleys. It remained for the helicopter to make possible the accurate survey of thousands of potentially valuable square miles.

Twenty-five years ago the U. S. Geological Survey had attempted a survey of (*Continued on page* 65)

At left, a helicopter perches nonchalantly atop a butte that serves as a surveying station. Colorado River is 3,000' below.

At top, Chester Lloyd, supervisor of Project Moab, sets up his thedolite on a rock-tipped butte in the basin eroded by the Colorado River; *below*, Pilot Rudy Skok sits in his helicopter in a remote section of Utah. Surveying instruments are strapped to the 'copter's frame during flights.

To: The Vice President-in-charge, Eastern District Printing Ink Division, Interchemical Corp.

AS THE title explains, this report covers my second full year's experience in operating a personal aircraft for business use. Shortly after my second year's use of a plane began, I replaced my first plane with an all-metal Cessna 170. I have found it to be a most rewarding investment.

From the standpoint of comfort, the Cessna has been most satisfactory. The seats are upholstered with foam rubber and are adjustable to the extent that, in the extreme rearward position, I can scarcely touch the rudder pedals. All upholstery has been treated to make it flame resistant, the craft is constructed of metal throughout and both fuel tanks are in the wings, so that smoking is entirely safe. In fact, individual ash trays are located at each seat, in addition to an electric lighter as standard equipment.

My particular plane is fitted with long range fuel tanks. These hold a total of 60 gallons rather than the 42 gallons in standard models. This means that I am able to go regularly from home to Atlanta, Ga., non-stop, arriving with a comfortable margin of reserve fuel. I have, on several occasions, flown as much as 12 hours a day with no particular discomfort, either during or after such a flight.

One of my most welcome surprises in connection with the Cessna has been its economy of operation. Its total gross weight, fully loaded, is about 2,200 lbs., and it has a six-cylinder engine rated at 145 hp.

Maintenance, to date, has been surprisingly low. Of course, the first year's maintenance will be the lowest of any year as would be the case with any piece of machinery. For instance, I have recently ordered new exhaust manifolds for my engine, since the original ones cracked. These can be welded, but the cracks recur with increasing frequency. New manifolds of the same manufacture cost about $60 plus perhaps $20 for installation.

A superior design can be obtained at a cost of about $200 installed, and since I find these recommended as outlasting the others by more than the difference in cost, they are the ones I am getting. This amount will therefore be added to maintenance charges for the next year's operation, although perhaps a portion of the amount should properly be charged to "capital investment."

Sometime in 1953 or 1954, a major overhaul will be necessary on the engine in this plane, and this involves completely disassembling and rebuilding at a probable cost of from $600 to $700. On an average, this sort of job is done every 100,000 miles. These items are mentioned simply by way of providing some additional information to help assess the figures given later, covering various phases of the past year's operation.

The plane has paid its way and earned new respect from myself as well as from many of our customers in an ever-increasing number of ways. It is coming to be accepted increasingly as one of our necessary "tools," in helping to improve customer relations as well as increasing our own range, scope, and efficiency. For example: I no longer feel it is extraordinary for me to fly to Atlanta direct, or to stop at Charlotte, N. C., en route, to have lunch and discuss business with a customer, pick up one or two of our men at Atlanta, and continue to Tuscaloosa, Ala., Columbus, Ga., or Pensacola, Fla., all in the course of a day's work.

To point up the practical utility of this means of getting around, and even getting something done in the meantime, I might mention that on two different occasions, when flying from Atlanta to Tuscaloosa, after having flown from home the same day, I have called the Tuscaloosa radio facility, by radio, and asked them to request a rental car at the airport to meet us on arrival.

I have been en route to Charlotte, and have contacted the radio facility there, who have obliged by asking a customer to meet me at the airport for lunch. Thus, with almost no lost time at all, we have been able to discuss business over lunch, while the plane was being refueled. I have also used these facilities at Columbus, Ga., and elsewhere, to real advantage. Of course there are times and places when such requests could not be considered, but when the CAA personnel have time to do so, I have invariably found them most helpful and cooperative.

Incidental to the original purpose for which I began to use an airplane, I have found it is a marvelous instrument for building and maintaining good-will among customers. One of the first trips for which I used this plane was in taking a friend and his wife to Florida last winter for a long weekend at Jack Power's place at Ft. Myers Beach.

This man had flown a few times on commercial airlines prior to this trip, and his wife previously had flown little or none. Neither had ever been to Florida, although they had talked of it for some time, so we agreed to celebrate their 20th wedding anniversary in this way.

They were both anxious to go, but as the date crept closer, they had misgivings. First, they had all their insurance policies checked. Next, I learned, they had made their wills. I think they both secretly hoped something would happen to force us to call the trip off. There was also a lurking fear of motion sickness, since neither of them had ever been in a lightplane before. On the morning of our departure they confided that neither of them had slept much for the past two nights! But they were game, and we left home at 7 a.m. The flight was smooth as silk almost every mile of the way, and after stops at Raleigh, and Jacksonville, for food, exercise and fuel, we (*Continued on page* 50)

The TUTTLE REPORT

PART II

Continuing a businessman's report to his company on his use of lightplane transportation.

By DOUGLAS E. TUTTLE

Genealogy of American Aircraft

From *Cloudster* to *Skyraider*

—three decades of Douglas.

By GILL ROBB WILSON

HEREWITH begins a series of graphic presentations of the genealogy of American aircraft, calculated to test and inform the reader. Family by family the planes of the United States will be presented in successive issues of FLYING.

In these genealogies the reader may trace the maturing of famed civil and military types and models; note the unique genius of each family; mark points at which designers attained fresh utility and performance; and, we hope, see that aircraft production is not so much a matter of nuts and bolts as of philosophy, vision, faith.

Donald W. Douglas built his first aircraft, the *Cloudster*, in 1920. The Douglas Aircraft Co. since then has produced 30,000 planes of various types and models.

In scanning the Douglas family tree readers will immediately identify certain famed models which have been more than airplanes . . . instruments of national survival—the venerated DC-3 of which 11,000 were built; the DC-4 (1,200) which, as C-54 of Army and R5D of Navy, gave substance to global air logistics in World War II.

Navy men from the Pacific will mark that the SBD's (5,559 in quantity) sank more Japanese tonnage in 1943 than all other arms combined.

Veterans from Korea will identify the B-26, originally the A-26, which today forms the backbone of night interdiction against the communists.

It will take oldsters to recall that the M-1 was the first commercial airmail plane ever built; that the DT was the world's first torpedo plane; that the DC-2, flown by Pilot Parmentier of KLM, placed second in the London-Melbourne race in 1934.

Millions of airline passengers have ridden the DC-6 and 6B, and Air Force men know well the C-74, and the mammoth C-124 with the clam-shell mouth. But how many know how much these great civil and military transports owe to the single XB-19, a prototype bomber 10 years ahead of its time, with a payload of 18 tons and a range of 8,000 miles?

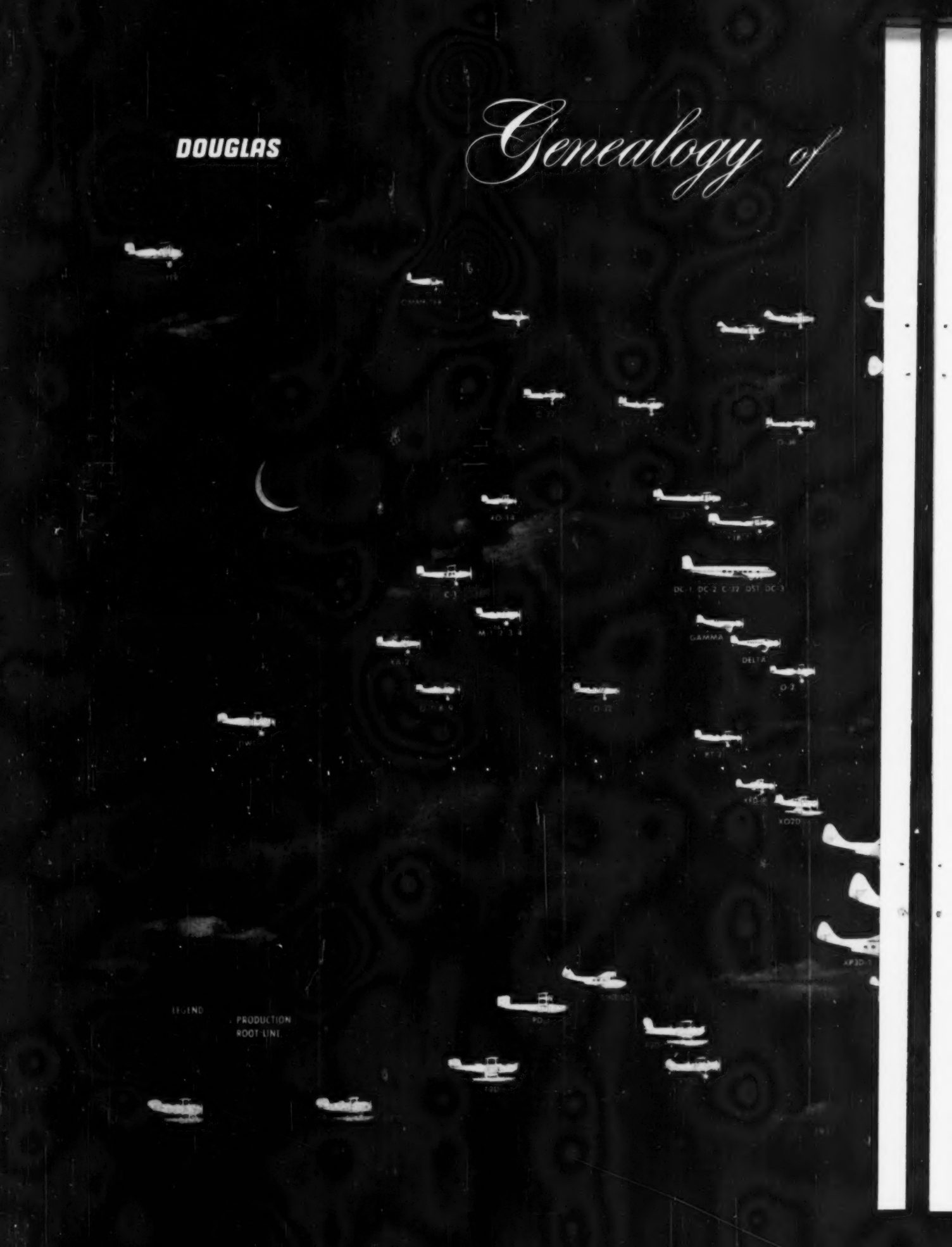
Again, only oldsters will recall the Douglas "O" Army observation types of 1925-35. Yet two of them flew around the world. Then there was the later group of attack craft, the SBD's, TBD's and AD's of Navy and the A-20 of Army.

The reader will note where Douglas terminated design of flying boats; where, in the XB-43, the company produced its first jet, and subsequently explored sonics with the *Skyraider* and *Skystreak*, of which the F3D twin-jet night fighter is already one progeny.

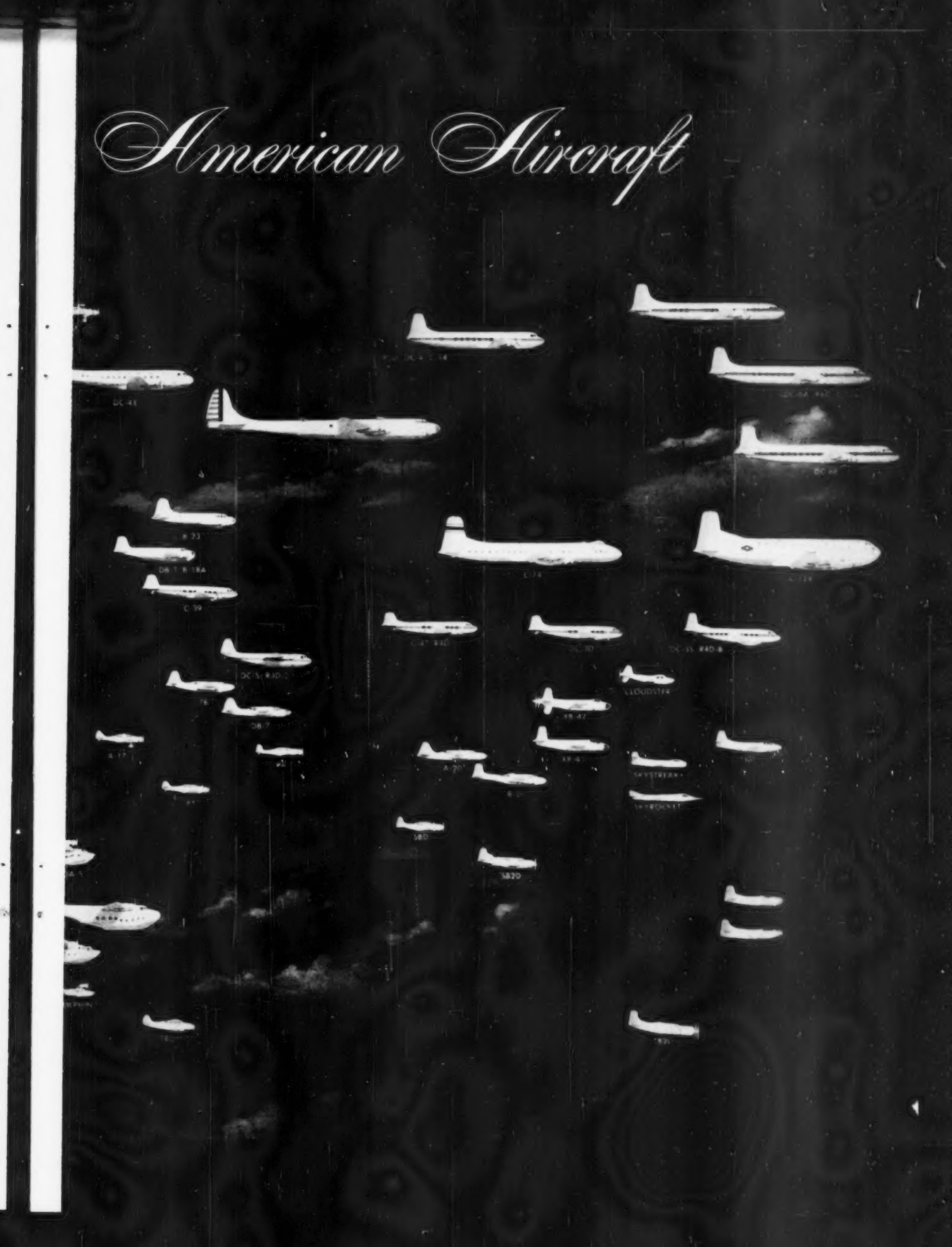
But study the chart for yourself. When you know it thoroughly you will have a start toward some real understanding of American aircraft evolution. END

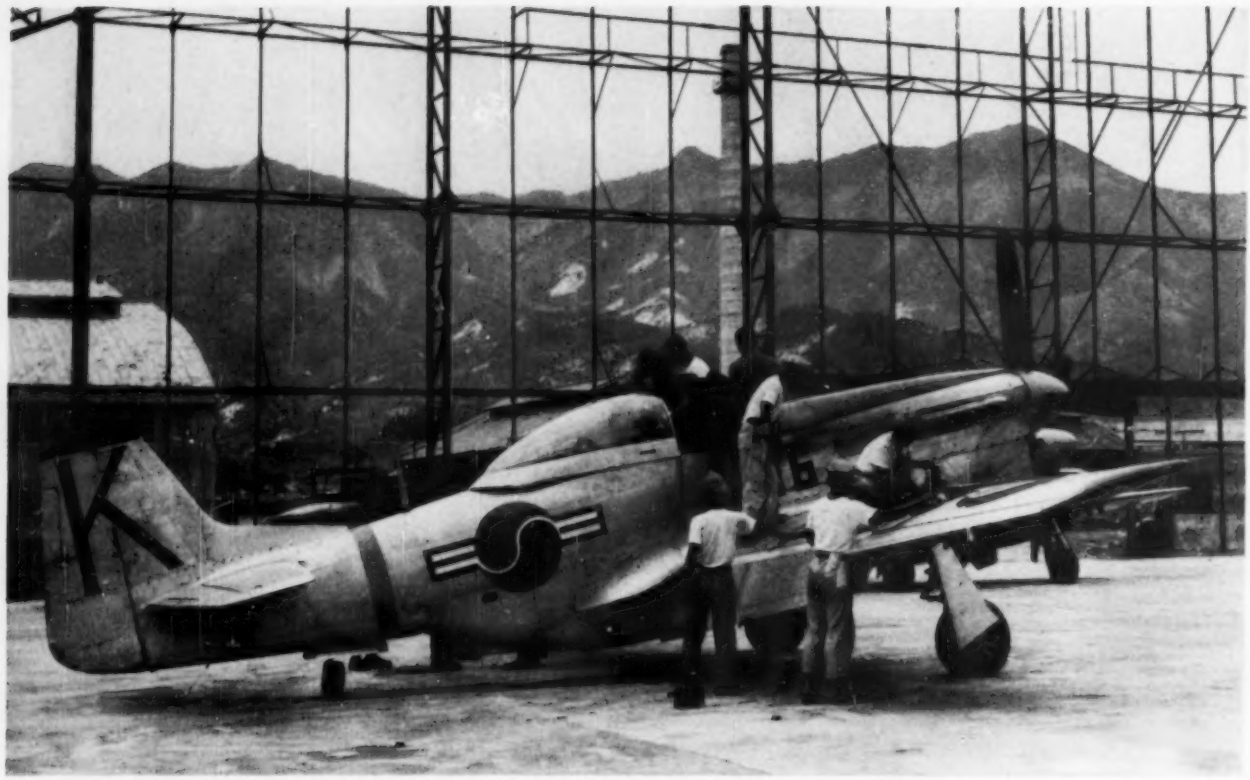
DOUGLAS

Genealogy of



American Aircraft





Against a backdrop of South Korean mountains, members of the Republic of Korea Air Force prepare a *Mustang* for combat.

Korea's Own

When it comes to pinpointing a bomb or penetrating a camouflage, Republic of Korea fliers are the original "Hot ROKS."

By JACK LEWIS

THE Marine major stood at the edge of the runway, peering critically upward as a four-plane flight of F-51 *Mustangs* broke, each plane peeling off with calculated regularity. As each hit the end of the runway, the divided circular insignia of the Republic of Korea was visible, the red and blue standing out against the silver-sheathed fuselage.

The Marine nodded his approval.

"Don't know anyone who wouldn't be happy to have those lads around," he declared. Nearby, a colonel in the ROK Air Force broke into a wide smile. During the time his unit and aircraft of the 1st Marine Aircraft Wing had been operating from the same field, he had learned that to offer any kind of a compliment was something unusual for the Leatherneck airmen.

South Korea's tiny air force has a short history. Yet U. S. Air Force, Navy and Marine pilots express nothing but respect for the fliers of the small, beleaguered republic. The organization started in 1949 with about 150 men. Today these men are proving to jet-minded American pilots that such planes as the faithful old *Mustangs* of World War II are far from obsolete.

It has been reported that the Republic of Korea Air Force has a higher percentage of hits on enemy rail lines per hundred bombs than any other flying unit in the Korean war. The South Koreans constantly maintain near 100 per cent availability on all aircraft—and it is considered a disgrace for both pilot and plane crew if the air-

At left, South Korean Captain Ock Man Ho, who earned the Silver Star for his valiant mission to deliver an American general to a vital meeting, reviews a flight with Marine Capt. Lewis W. LaGro. *Below*, ROK Col. Kim Shin briefs a group of his airmen before take-off.

Buzz Boys

craft comes back from a mission carrying ordnance under its wings which has failed to fire because of faulty rigging. One entire group of F-51's had only seven rockets fail to fire during five months of combat operation.

The tiny fighting unit started out in the early days of the current war with only a few planes—Piper *Cubs* and T-6 trainers. As Red forces swept down from the north, bombing runs on the advancing enemy consisted of dropping hand grenades from the open cockpits. Rocket runs were instituted after some the pilots started hanging the infantry-type "bazooka" under the wings of their ships and firing them off by electrical contact, when the aircraft was pointed in the general direction of the communist objective.

The pilots then—and today—make up a motley cross-section. Some flew with the Japanese during World War II; one was trained by the Chinese Nationalists and later flew with Chennault's "Flying Tigers"; another was trained at Randolph Field, Texas, with our own Air Force cadets, and at least one was trained by Russian airmen in North Korea. Just before the Korean war began this last flier stole a Russian-built attack plane and flew into South Korea to desert. Landing at a Republic of Korea air base, he joined the democratic element and has been flying against the Reds ever since.

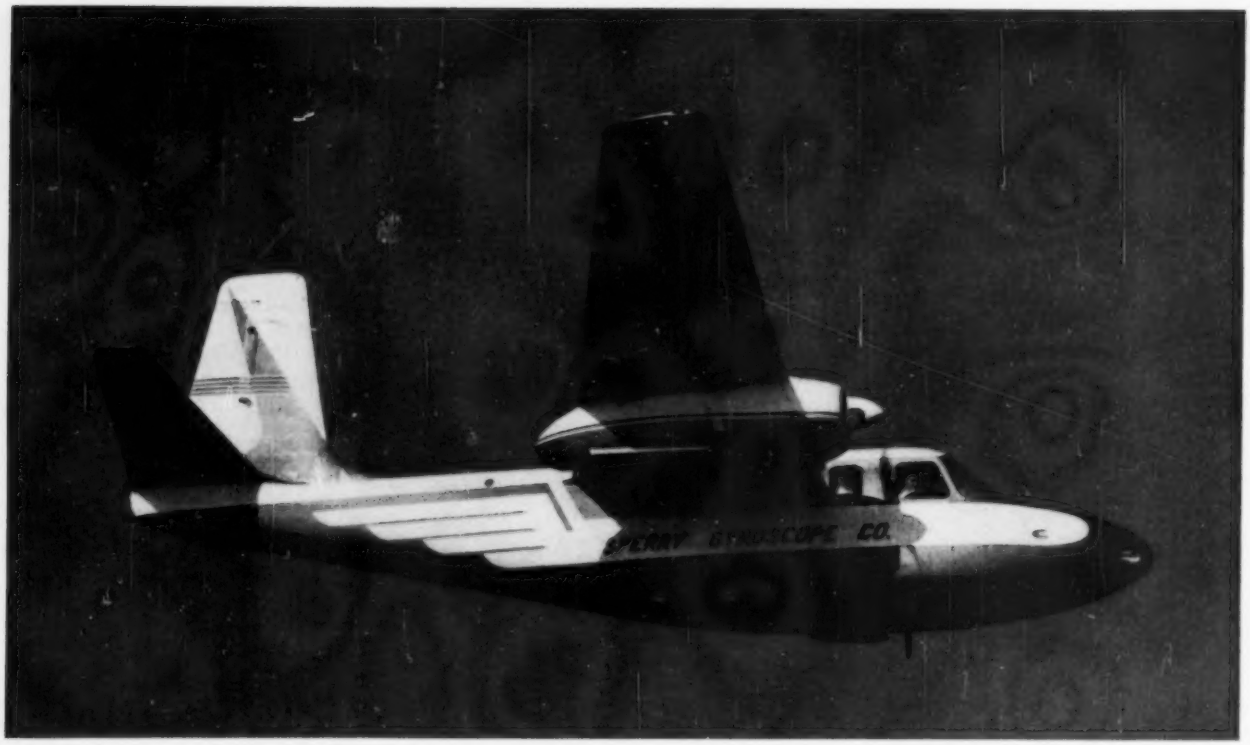
Although most of the more experienced pilots were foreign-trained as a result of the last World War, training is now being conducted at several South Korean air bases under the guidance of the U. S. Air Force. A group of Korean engineers, who have become familiar with the American-built engines, work with the Air Force people in turning new recruits into capable mechanics.

In the Koreans' operating squadrons, U. S. Air Force mechanics and technicians teach in an on-the-job fashion. As one of them puts it: "It's a tough job. We not only teach them everything we know about the aircraft, but in getting it across to them, we end up by teaching them the English language as well!"

Pilots are trained "from the ground up" starting in *Cubs* or Aeroncas after completion of ground training. They later progress to the North American-built T-6 trainer and observation plane. When this has been thoroughly mastered, they are put into the F-51 *Mustang*.

The extensive course which young pilots undergo in this ship is a far cry from the checkout during the early days of the Korean war, when the first F-51's were turned over to the unit. At that time, pilots were shuttled to Japan and given a quick checkout in the *Mustang*. Some flew their first combat missions after only an hour or two in the cockpit.

Captain Lewis W. LaGro of White Pigeon, Mich., who has flown more than 100 missions while with the Koreans in an advisory capacity, declares: "These boys have flight leaders every bit as good as any I've seen in our own Air Force. I don't have any qualms at all about following them into any kind (*Continued on page* 43)



Sperry uses its *Commander* as an executive transport and to test navigation aids and equipment. The company ordered a second *Commander*.

This modern "twin" is tailored to the needs of the flying businessman.

THE story of the Aero *Commander*, 200-mile-an-hour, twin-engine executive transport, proves again the old adage that if you build a better product the world will beat a path to your door.

For that is what has happened at the small but bustling factory of the Aero Design and Engineering Co. at Tulakes Airport in Oklahoma City.

Since turning out its first production model in January, 1952, Aero Design has produced and delivered more than 60 executive aircraft. These are now in service for a wide variety of industries and businesses throughout the United States and in several foreign countries.

How successfully this light transport has met a variety of diversified needs is indicated by a breakdown of the types of industries and businesses using them. Nine are owned by oil companies, six by manufacturing concerns, two by construction companies, two by newspapers, one by a lumber company and 15 are used for the personal transportation of assorted top executives. Six Aero *Commanders* have been delivered to foreign countries where they are used either by executives or by government officials.

What is the formula that has won for this five-to-seven passenger transport such ready acceptance as an executive's airplane?

The *Commander* is a tri-cycle geared airplane and is the first of its type in the commercial field to go to high wing design, a new trend that is noted among some super-fast aircraft in the military field.

The *Commander* is a "fresh" design, its prototype being the first such airplane produced since before the war. Advancements in the field of aircraft design are evidenced in the *Commander's* 5-to-1 performance ratio, representing the differential between its high speed of 211 mph and a power-on stall speed of less than 40 mph, reported to be the highest performance ratio of any commercial airplane ever produced in this category. Wide range of performance is the goal that every designer seeks—to produce an airplane with a high top speed plus the ability to fly at very low speeds.

The advancements realized through the *Commander's* new design were demonstrated nearly two years ago when it took off on one engine and made a single-engine, non-stop flight from Oklahoma City to Washington, D. C. It thus became the first airplane of its type to take off from a standstill and make a sustained long distance flight under gross load conditions, with one engine completely inoperative.

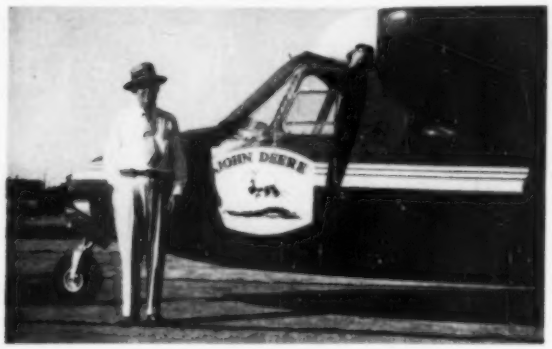
In addition to increased aerodynamic efficiency and greater inherent stability gained through its high wing designs, the *Commander* introduces a number of features desirable in private and executive aircraft.

Its low-level cabin, requiring a step of 19 inches from the ground into the cabin, makes it as easy to enter and leave as the most up-to-date automobile.

From the pilot's position, which is well forward of the wing, visibility in all directions is practically unlimited. This feature, together with the low-level position of the

The Chicago Tribune uses "Tribby" *(right)* as an aid to speedy news coverage over a large area.

Pat Weindell *(below)* is chief pilot for Deere and Co. The firm has a second *Commander* on order.



Aero Commander

Hubinger Co., Iowa manufacturer of corn products, uses its *Commander* for sales as well as executive transport. Howard L. Peper is the company's salesman-pilot.

First Commander sold outside the U. S. went to Asahi Newspaper Co., Tokyo. Jack Ford (left) flew the plane from Oklahoma City to Japan.

By WILLIAM W. NEALE

Commercial Petroleum and Transportation Co. executives use their *Commander* in flights from Houston to all parts of U. S. Bob Wyche is pictured with plane.

nose and cabin, makes it possible for the pilot to see the ground as near as 11 feet in front of the nose of the airplane. The low-level position of the nose, the high-level position of passenger seats, and approximately 3,280 square inches of window and windshield area give the *Commander's* passengers almost as much visibility as pilots have in some airplanes.

In the *Commander's* high wing design, center section spars and other obstructions are removed from the floor of the cabin. The result is unobstructed floor space and a high degree of flexibility in seating arrangements for passenger comfort. This permits special installations and features such as individual seating for six people, airline type reclining chairs, lounges, buffet cabinets, and card tables.

The problem of ground cooling for the cabin during summer operations has been solved in the *Commander* by a self-contained blower system which pumps fresh air into the cabin, while on the ground, at the rate of 425 cubic feet per minute. When the airplane is airborne ram air is used for ventilation and the blower system is turned off. Winter heating is provided through the use of a Janitrol heater having a capacity of 25,000 b.t.u.'s. Warm air is fed through the ventilating system by the electric blower while on the ground, and by ram air while in flight.

An advanced feature, used for the first time in the *Commander*, is its simplified fuel system. This system incorporates the use of five rubber (*Continued on page* 57)

Maurice G. Hitchcock, president of White Swan Lumber Co., finds his *Commander* easy to land at and take off from improvised fields at Northwest camps.

T. L. Lumly, president of Refinery Engineering Co., Tulsa, uses his *Commander* for fast transportation to oil fields hardly accessible otherwise.

Throttle Tricks

Stop me if this sounds familiar—

or maybe it's time you heard it again!

By WESLEY NEAL

"ROUGH AND READY" TAYLOR, they called him. Man, how he'd mistreat an engine. Bend and jam that throttle around like it was a blade of grass. Taylor finally bought his own plane and continued the rough treatment until the first inspection. When he saw those pistons?—ugh. "Soft as Silk" Taylor they call him now.

Good throttle technique provides a sure path to safe and thrifty flight operations. It also calls for system, from start to finish of every flight. Here are a few suggestions which may well lower both your insurance premiums and repair bills.

You have heard it said a hundred times, "Crack the throttle." Don't let down your guard on this one. Someone may have left that throttle wide open following the previous flight. And it can be mighty uncomfortable to go buzzing across the ramp hotter than King Solomon's furnace. Make certain that throttle is cracked.

Another common fault lies in the jockeying of the throttle during starting. Throttle pumping sends raw gasoline trickling down those unprotected cylinder walls, causing prematurely worn-out rings, scored cylinder walls and engine breakdown. Wiggle the wobble pump if you must, but not that throttle.

Next "don't" concerns throttle etiquette. I'm no Emily Post of the airways, but I've learned a few things through sheer blundering which may save you a delicate moment or two. Take the stupid trick I pulled down Jacksonville way.

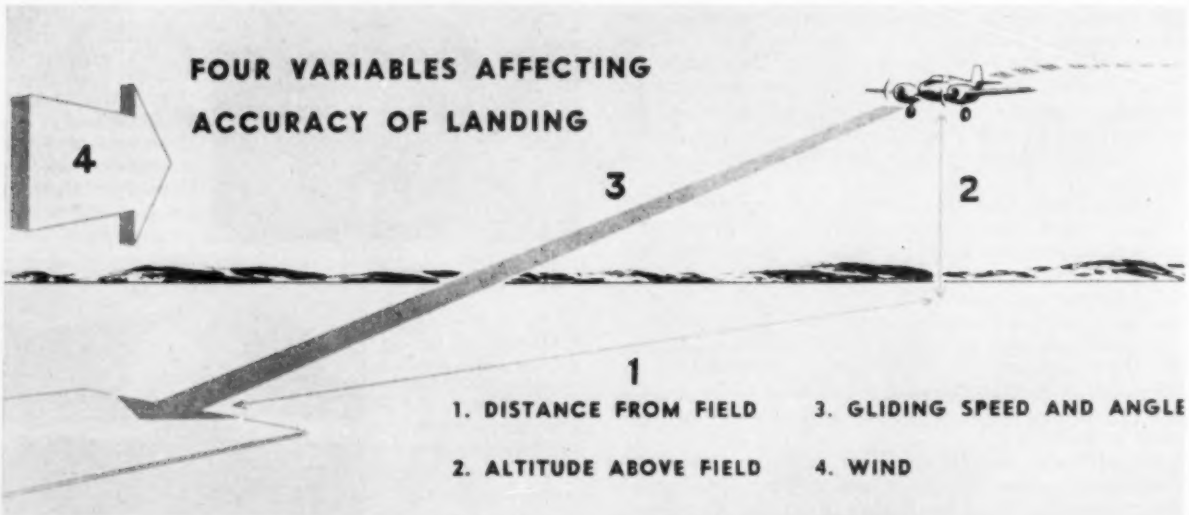
I had taxied out to take-off position and was running through my pre-take-off checks. This baby carried lots of horses and she was pulling hard at the brakes while I boosted the mercury for my magneto look-see.

All of a sudden the tower operator came blasting into my earphones with a few well-chosen monosyllables. In no uncertain terms he ordered me to cross the runway and point my tail out toward the Atlantic before continuing my engine check. Which I did.

Upon turning, I saw the trouble. Mechanics, hangar personnel and airport visitors were coughing and rubbing my propeller dust out of their eyes—all because I failed to observe the very basic courtesies before shoving that old throttle forward.

Another crucial period from the standpoint of throttle procedure occurs during take-off. Accident figures show an alarming number of mishaps which take place immediately before or after the wheels leave the ground. In the search for the cause, again (*Continued on page* 40)

Of the four factors to be considered in the planning and execution of a landing, all except wind are controlled by action taken by the pilot.



Design for the Cessna 318, Air Force trainer to be powered by two Marbore 352 jet engines.

"Marbore" finds a job

The Air Force chooses a jet trainer—first in the field.

By CHRISTIE CAMPBELL

THE combination of Cessna's design and Continental's Marbore 352 jet engine has tentatively given the Air Force its first basic jet trainer.

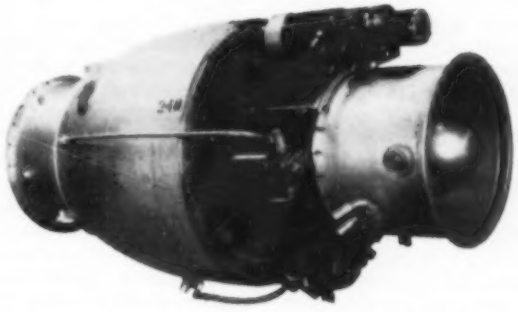
This wedding of aircraft design and jet power in a projected model of basic trainers marks a milestone of broad significance. It introduces the new form of power to the whole range of lighter aircraft.

Propelled by two 900-lb. thrust Marbore 352's, the Cessna 318 is a side-by-side aircraft of 5,600-lb. gross weight with retractable tri-cycle landing gear. With its top speed of 350 knots it will inevitably make the mouths water among certain civilian owners for "something like that."

When the concept of using gas turbine power for aircraft propulsion was first introduced, the emphasis was on volume of thrust for higher military performance. The world was at war and providing faster legs for fighters and bombers was of prime consideration.

Due to this consideration the idea became prevalent that jet power would be adaptable only to engines of high output. During the war the American aircraft industry was completely absorbed in production of then current airframe and engine designs. Nor immediately following the war, and in the face of unreasoned aviation cutback, did the industry have opportunity to do more than scramble for its bare survival. Intermeshed economically with military production, the personal aircraft industry shared its fate.

Eventually the national administration, realizing it had been suckered by the Soviets, and turning toward the aircraft industry, prime supplier of national defense, announced fantastic production schedules —figuratively speaking, a jet bomber with each pound of butter.



Continental Aircraft & Engineering Corp. will build this French-designed, 900-lb. thrust jet for the new trainer.

Caught with its power down, the aircraft engine industry, barred from jet development during the war and emaciated by lack of subsequent development and procurement program, was forced to turn where it could for additional research and design experience in gas turbine power.

European nations, relatively free from major responsibility for freedom's airpower and fortified by American dollars at the expense of American defense, had concentrated much of their fine engineering skill on jet research and design.

Swallowing its pride under the circumstances of national extremity, the American aircraft engine industry consequently went into the European design market and bought manufacturing rights to the cream of the crop. Currently applying its own genius to improvement and modification of these basic foreign designs for adaptation to American requirements, the industry is struggling to retrieve the national airpower position.

The interim extremity of the defense establishment is no better illustrated than by the fact that, although its combat airpower was converting wholly to jet, it did not have so much as a single design of basic jet trainer in service. This unfamiliarity with the jet at the introductory level of military training created a bad psychological condition and volunteers for pilot training fell off partly due to this fact.

When the Air Force, pressed to re-arm against a possible full-scale Soviet attack and simultaneously having the Ko-

rean (*Continued on page 65*)

The von Richthofen family, photographed in 1917. Baron Albrecht von Richthofen is seated and behind him (left to right) are Manfred, the Baroness, Lothar, Bolko and Elsa.

PREFACE

Living airmen who flew combat in World War I grow fewer apace. A scant handful attained great heights. Most of us did well to survive the plodding routine of our chores aloft.

Nor is it true that we were few in numbers. Some 38,000 French airmen, for example, perished in the Kaiser's war. British and German air casualties were comparable.

There was adequate reason. Training methods were embryonic, facilities few, airfields makeshift, communications negligible, engines and guns temperamental, and planes flamed easily or structurally failed under undue stresses. We had no parachutes, no real flight instruments, no armor. Even organization was hit and miss. My squadron had neither medical officer, dentist nor chaplain. We were not so much as allowed to wear the squadron insignia until after 18 missions . . . the average number that an average pilot survived in the outfit.

Yet against the background of inexperience and inadequacy which prevailed on both sides of the war a few airmen staged phenomenal performances . . . Fonck, the delicate Guynemer, the brash Nungesser, Madon and a dozen additional Frenchmen; the Ball boys, Bishop, MacCudden, Douglas and a score more British; and among the Americans in the later days, Rickenbacker, Putnam, Landis, Vaughn, Campbell and a handful who might have been Aces of Aces if the United States had been in the war from the beginning.

There was no true common denominator among the greatest. A few flaming spirits became famed without being either superb airmen or phenomenal shots. Some parlayed flying skill into a long string of victories without being either great leaders or exceptional marksmen. Some were miraculous shots without being superb flyers. And of course some had better judgment and a sounder sense of good tactics than others. Those of us who have put outstanding genius probably hated worst to tangle with the exceptional marksmen. They could lie back there and throw no more than a half dozen shots [illegible] burst.

Who was the greatest of the great [illegible] ays be a subject of unresolved controversy. [illegible] the phenomenal Fonck who had probably the longest string of victories and on whom no enemy pilot was ever able to hold a burst of fire. There was the deadly accurate Guynemer who could fire a single shot with a machine gun [illegible]

But in anyone's choice of the two greatest of that great air war, one would have to include the German Manfred von Richthofen. A [illegible] magnificent marksman, an unquestioned leader, a creative tactician, a fighting spirit and crusader for his faith, he left his impression on friend and foe alike as did probably no other single airman of his time. Psychologically at least his death was a turning point in the air phase of World War I.

So it is that on this 50th anniversary of his death and 50th anniversary year of powered flight, we asked a former fellow airman of Manfred von Richthofen, [illegible] Theodor Von Zastrow, to call on his mother, the Baroness, now aged 84 and living in Wiesbaden. The Baroness agreed to write of her son and her article follows.

Forced to flee from the Richthofen estates in Silesia from before the Soviets, the mother of the Red Knight has over the years had extensive contact with Allied airmen who fought against her son.

Both sides of the controversy over what ended the career of the German Ace . . . ground fire or air fire . . . can prove their point—to all but a few of us skeptics who know that we can never know beyond dispute.—G. R. W.

My son Manfred

AS TOLD BY

BARONESS KUNIGUNDE von RICHTHOFEN

TO

THEODOR von ZASTROW

Baroness von Richthofen

THE beginning of World War I found my son, Manfred, a young Lieutenant of the First Ulan Cavalry. He approached his task as a cavalryman with the greatest enthusiasm since in those days the romance of that service with its dashing skirmishes and rapid actions held a vast appeal to a spirited young officer.

Unfortunately for him, however, the First Ulan Regiment was not [illegible] the Cavalry Corps fighting the infrequent open field engagements under General von Richthofen. To make matters more depressing for Manfred, his younger brother Lothar, in the Fourth Dragoons, was attached to the advance forces of the Cavalry.

When Lothar wrote that he had been far forward to glimpse the distant towers of Paris Manfred's cup of discontent was overflowing. On his first leave home he told me that he was ashamed to ask transfer to the infantry.

Meanwhile, however, a new type of arm, the airplane, began to come into prominence. The names of individuals, especially those of Immelman and Boelke, were brought to public attention.

To Manfred this appeared a way to get action. He volunteered for aviation training and was sent to an Observer's School. Within six weeks of entering this school he had graduated and been posted to the Eastern front.

This was better. Manfred's letters began to reflect his interest and delight. Many of his observer's missions were flown with Count Holk, one of Germany's great horsemen of that day.

However, it was not long before Manfred observed so much of the new line that he wished for pilot training and shortly thereafter was added to his achievement. Having attained his brevet he was requested by Boelke and transferred from the Eastern to the Western front.

From the very first the great Boelke appeared to recognize Manfred's inherent adaptability to air warfare and forecast that he would become the Ace of Aces. His record of victories soared from the beginning, as his Commander predicted. So it was that when Boelke was accidentally killed in October, 1916, Manfred was given command of the squadron. Before he had commanded the squadron a month his record had climbed to 16 victories and he was Germany's top living fighter pilot. True, he had not yet received the "Pour le Merite" decoration, but he had come a long way for an unheralded Ulan Lieutenant and his happiness was overflowing.

His great rival among enemy airmen at that time was the French Ace Pegout, with 16 accredited victories, and it was hard for the French to credit that anyone was the equal of their great hero. They doubted the German record.

However, the English knew better. They were daily in combat with Manfred and knew that the German communiques on his victories were authentic.

Manfred von Richthofen, the "Red Knight"

As is natural under any such conditions a wealth of rumor and legend began to accumulate around the fighter pilot in the red plane. It was even claimed that Manfred was a girl . . . a replica of Jeanne d' Arc, as it were. But behind all the rumor and publicity lay a basis of solid achievement . . . great airmanship, accurate shooting and a burning of the midnight oil to contrive ever sounder tactics and squadron teamwork.

By May, 1917, Manfred had 52 accredited victories and when he came home on leave that spring was promoted to Rittmeister. This step inaugurated heavy administrative responsibilities. A new group of four fighter squadrons was organized around Manfred. He became a national symbol. His personal mail was a flood and had to be answered because of his public adulation. He drove his fellow pilots hard but himself harder. Upon several occasions he went out alone to meet a situation rather than send an already exhausted flight on a (*Continued on page* 51)

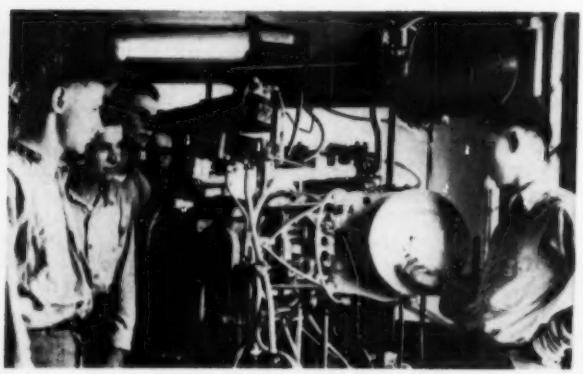
Taxi instructions are demonstrated to a boot (right) by a regular air station groundman as a *Banshee* moves up to the flight line at Glenview.

There's a new "90-day wonder" in the Navy. He's the product of Navy's Accelerated Training.

By NORMAN SKLAREWITZ

Navy's Trial Enlistments

Below, a technical training instructor shows trainees how radar waves can light up a neon bulb. *At bottom*, a trio of boots are briefed at Glenview NAS before boarding an SNB-5 for a familiarization flight.



REGULAR Navy men at the Glenview Naval Air Station took one look at the bulletin board and shook their heads in wonderment. Posted was a directive announcing the shortest enlistment in history.

The notice gave details on a rather strange "hitch." It lasted only 90 days! This wasn't some new recruiting device worked out to replace the old four-year duty. It was the Naval Air Reserve's unique Accelerated Training program—regarded by many as the best reserve method yet devised by any branch of service.

In substance, the "trial enlistment" permits young men, 17 through 21, to join Naval Air Reserve for three months' duty with full pay and allowances. During that time they live on a base, go through a special boot training course and emerge with an airman's rating.

Then each man makes his own choice of what happens next. He can go to full-time active duty; join an Organized Reserve Squadron, or just remain with the Volunteer Inactive Program.

The program was carried out last summer for the fourth consecutive year and Reserve Training Officers plan to repeat it this year. Their enthusiasm is well-founded. The training cycle has helped fill a serious gap in Navy's Air Reserve, caused by the rapid recall of trained men to active duty.

For a time after outbreak of the Korean War the drain on reserve squadrons threatened the command's entire mission. Without immediate replacement for thousands of rated men in the highly technical fields of aviation maintenance and flight crews, crack units would soon exist only on paper.

The Chief of Naval Operations and the Chief of Naval Air Reserve Training met early in 1949 to work out a solution to the pressing problem. Before them was a bleak picture. It wasn't a matter of manpower, for enlistments in the Reserve continued. Rather, the question was of

Thousands of young men between the ages of 17 through 21 are getting the inside story on Navy service and careers through the Accelerated Training program. *Below*, boots learn to "secure" a plane.

training time. With only one week end a month plus the two weeks' summer duty, a new airman recruit needed the staggering time of 31 months to achieve the rate of third class in his specialty.

There just wasn't any way of shortening the training period until the radical idea of offering a special "short term enlistment" was proposed. The plan was simple: recruit young men during the summer vacations and concentrate technical training in that period when full attention could be devoted to their studies.

At first the plan sounded impossible. No branch of service had ever attempted such a thing. Yet the CNO was eager to try the experiment and details were set up. In the summer of 1949, the first quota of 1,987 men was enlisted for the eight-week accelerated training program.

Navy staff officers watched reports from reserve stations across the country that year. When the cycle was over, they reported "complete satisfaction" with the results. In the summers since then the accelerated program has been modified and expanded to meet changing conditions until the present format emerged.

Then the training cycle was split into two units. The first is a 56-day "boot-type" recruit program. During this brief hitch, the young men get standard recruit instruction and complete their duty as apprentice airmen.

Following this, each can re-enlist for a 90-day Recruit Airman training course—only one of its kind in Navy history. It gives trainees an overall view of Navy air specialties that ends in an airman's rating. In 1952, 1,739 young men at 28 stations and Naval Air Reserve Training units underwent the 90-day training and 92 per cent elected to remain with the Organized Reserve at the end of their duty. A total of 3,665 men were trained by the Accelerated Training Program in one year.

Glenview Naval Air Station northwest of Chicago was a typical station participating in (*Continued on page* 60)

From the instructor's viewpoint, visibility is unobstructed when the new shutter type hood, designed by TAC safety officers, is installed.

"Blind" Flying

This practical instrument flying hood can readily be duplicated.

By JAN BOGARDUS

AN instrument flying hood, designed to improve the safety outlook for pilots undergoing instrument training, has been developed by two Tactical Air Command flying safety officers.

The device, brainchild of Lt. Col. Legrand J. Mercure and Capt. Albert H. Francis, is a shutter type hood that prevents outside visibility for the pilot, while offering no visibility restrictions for the instructor in the right hand seat of the cockpit.

Based on the principle that the pilot will see the flat side of a ply-wood panel while the instructor will see only the one-eighth inch thick edge, the new design offers a simple, inexpensive and safe way of accomplishing instrument training. The shutter type hood may only be used in airplanes with side-by-side seat arrangements.

Depending on the airplane, the hood normally consists of three plywood panels shaped and fastened to blot out the pilot's vision through the windshield and side windows. The panels, painted a dull black, are easy to install or remove, and eliminate the use of goggles, colored plexiglas headshields or other equipment uncomfortable for the pilot.

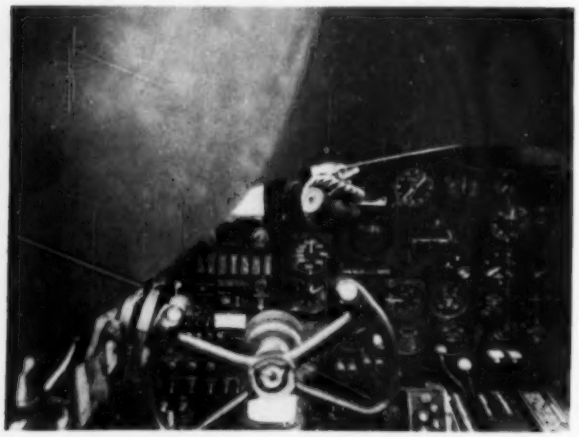
Pilot comfort, coupled with unlimited visibility for the instructor, is an important safety factor. With the panels in place, the pilot has full view of his instruments and controls in the cockpit, and the instructor can observe his operation of the airplane while enjoying an unobstructed view of the air ahead.

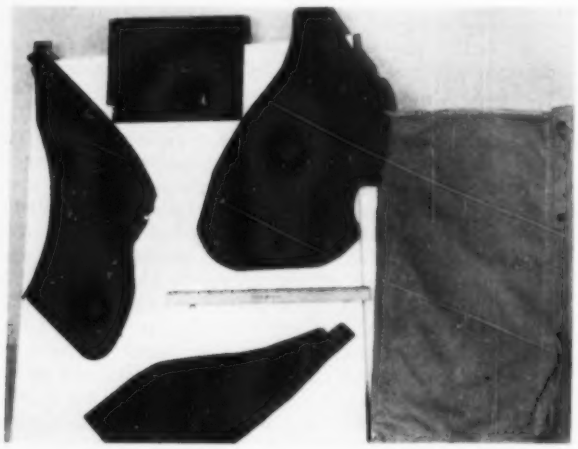
When Col. Mecure and Capt. Francis began work on their model of the hood, one of their objectives was to develop a device simple enough for fabrication out of available materials by units in the field. Their hood is not available through supply channels and any military unit desiring to use the hoods has to build them.

To make this job simple, the two TAC officers prepared full scale models and patterns for C-47, C-119, B-24 and B-26 type airplanes, which are available to the units on a loan basis. Building the hood requires less than 10 square feet of one-eighth inch plywood, a small quantity of sheet aluminum for brackets and about five catch-fasteners. Installation of the brackets and fasteners takes only a few minutes as there isn't any structural change in the airplane. Once the panels are shaped and painted it takes less than one minute to put them in place and they can be removed in about five seconds.

Both officers have had long experience in flying safety. Colonel Mecure, TAC director of flying safety, is a command pilot with over 7,000 hours of military and civilian flying. He is a reserve officer who in civilian life is a field director for the Atlanta, Ga., office of the CAA.

Capt. Francis is a regular Air Force officer with over 200 hours of weather instrument flying in multi-engine airplanes. During World War II he flew as a troop carrier pilot in the Far East. END





Above is the instrument panel, as viewed by the pilot while the instrument hood is in place. No goggles or blinders need be worn by the pilot. *At right* is shown the pattern for the hood as designed for a B-26. Carrying case is at right and 18" ruler indicates dimensions.

I learned about flying from that!

NO. 160

Even the most skillful pilot needs lift, if he would remain airborne.

By NEIL S. UTBERG

IN 1947 I was employed as chief pilot by the Edgerton Flying Service at Laredo, Tex.

Late one afternoon in July we became worried over the fact that one of our students was overdue on a local solo practice flight. The terrain around Laredo is quite barren, composed mostly of mesquite brush not very adaptable for forced landings. It is quite easy for an inexperienced pilot to get lost if he leaves the local flight area.

The student was flying a Cessna 120 and we received a report from a pilot at the International Flying Service, our neighbor at the Laredo Airport, that a Cessna was seen on a sand bar in the Rio Grande River about 25 miles north of Laredo.

Pilot Utberg

Ray Edgerton flew out that way in our J3 *Cub* and I followed in my automobile. He located the airplane and directed us to it as close as we could get in the car. He then landed the *Cub* on the road and from there we proceeded about two miles on foot to the river's edge.

Later that evening we learned the circumstances which accounted for the airplane being there. The student had made an unauthorized flight out of the local practice area up the Rio Grande River, where he knew he would find some friends in a boat, and proceeded to give them a "buzz job." Several low, power-off passes were made (without benefit of carburetor heat). On the last pass the engine failed to respond when the throttle was rapidly opened and a straight ahead forced landing was made in the middle of the river.

The airplane came to an abrupt halt, inverted, in about four feet of water. The student was not injured (except his pride—HE LEARNED ABOUT FLYING FROM THAT!) and with the help of his friends in the boat they set the Cessna right-side-up on a nearby sandbar. He then boarded the boat and completed the journey to Laredo. As a result of his poor judgment and violation of CAA regulations he later had his student permit revoked.

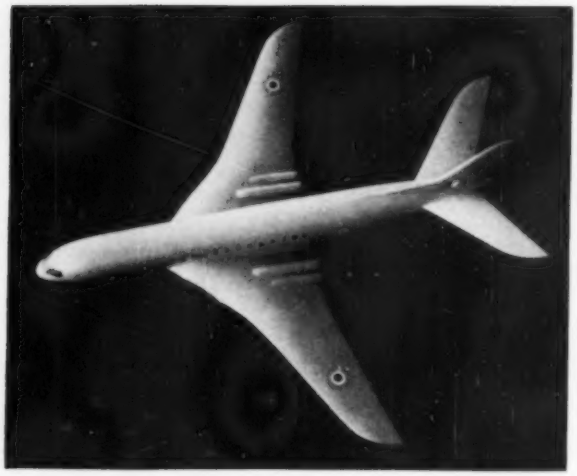
Now we faced the problem of getting the airplane back to the airport. Dismantling it and hauling it through the water and up the river bank, then over two miles of brushland to the nearest road, was out of the question. The current was fairly swift and the river bank was sheer, soft mud, bordered by 40 feet of the toughest, most dense brush I have ever seen.

Another alternative was to drive 150 miles to San Antonio, purchase three surplus rubber life rafts (one for each wheel) and float the airplane down to a more suitable area where it could be beached. The last alternative was to make minor repairs to the airplane and fly it off the sandbar. It was rapidly getting dark and we decided to put everything off until the next morning.

At dawn the next day Chuck Callaghan, our chief mechanic, loaded his tool box in the *Cub* and we flew out to the sandbar. It appeared to be about 700 feet long and 100 feet wide. We landed and looked the situation over. From the air we could see a tiny neck of land about four or five feet wide connecting the sandbar with the Mexican side of the Rio Grande River. Had the water been a foot higher this neck would not have existed. Several weeks later I flew over the same spot when the water was higher and the whole (*Continued on page* 56)

FRENCH DEVELOPMENTS

At top is the Breguet 960 *Vultur*, first French aircraft developed and equipped especially for catapulting. The 10-ton plane is undergoing deck landing and catapulting tests at Farnborough, England. Lower photo shows the Morane 755, twin-jet trainer-pursuit, recently test flown. All-metal, side by side twin-seater is equipped with two Turbomeca Marbore II jets.



VICKERS 1000

Above is a model of a 150-seat British jet troop transport, for which the prototype is now being built by Vickers Armstrong Ltd. An airliner version, seating 100-150, will be known as the VC 7. The transport will have four Rolls-Royce Conway bypass jet engines. Approximate dimensions are: span, 140'; length, 146'; height, 38'6". The low wing monoplane is derived to some extent from the *Valiant* jet bomber.

CESSNA ON FLOATS

At right is the Cessna 180 seaplane on Edo floats. The 225 hp, four-place plane takes off under normal water conditions in less than 15 seconds. Cruising speed is reported at over 135 mph, with rate of climb listed at 940 feet per minute fully loaded. Service ceiling is 16,500'.

Have you seen?

DC-7

Below is a drawing of the Douglas DC-7 as it will appear when it goes in service for American Airlines before next January. Specifications include: top speed, 400 mph; cruising speed, 360 mph; power plants, 4 Wright R-3350 Compound; take-off power, 13,000 up; wingspan, 117'6"; overall length, 108'11"; overall height, 28'7"; gross weight (medium range), 116,800 lbs.; gross weight (long range), 122,200 lbs.; fuel capacity (medium range), 4,512 gals.; fuel capacity (long range), 5,512 gals. American has 25 DC-7's on order.

C-130 ASSAULT FREIGHTER

Above is a scale model of Lockheed's new C-130, the USAF's first turbo-prop transport. Designed to fly high, fast and economically, the long-range plane will be used for front line assault and ground-to-ground support. As a hospital plane it will accommodate litter patients and attendants, and will also be used to fly troops (including paratroops) and cargo. Design features are low-slung fuselage for fast loading, overhead windows and four turbo-prop nacelles for turbines which turn three-bladed props. Rear cargo door becomes loading ramp for straight-in loading at truck-bed height or can be lowered to permit heavy vehicles to drive in. Landing gear has main units arranged in tandem. Entire fuselage will be pressurized. Wingspan is 132', length 95', height 38'. Short take-off and landing runs will suffice. Prototypes are under construction at Lockheed's Burbank factory; quantity production will be at Marietta, Ga.

FJ-2 FURY

Above is first photo of North American Navy FJ-2 *Fury* showing wings folded for carrier storage. The swept-wing, carrier based jet fighter, in production in Columbus, Ohio, has a speed in excess of 650 mph and carries four 20 mm. cannon.

BELL X-5

Multiple exposure photo *at left* shows range through which wings of Bell X-5 are moved in flight. X-5, first plane to vary wingsweep in flight, has been flown more than 60 times at high sub-sonic speeds during tests.

Throttle Tricks

(Continued from page 30)

the trail leads to the throttle.

A student of mine once had the darnedest habit of shoving the throttle forward, then freezing onto the wheel with both hands. Students alone aren't guilty. Some of their experienced brethren do the same thing. Figure it out now. Zipping along at 100-plus, just how far will you travel in the time it takes to get that big paw off the wheel and onto the throttle? Too confounded far. Might mean the difference between a safe emergency stop and a crumpled heap of junk piled against a fence at the end of the runway.

Same thing applies during the landing approach. "I didn't see that airplane pull under me" . . . "I tried to go around but I couldn't pull up in time." . . . "She mushed out on me and I pancaked in before I could recover." How many of these familiar tales might have taken a different form had the pilots kept a hand on the throttle for quick, positive action!

Stall Recovery

Which leads to another delicate subject —throttle application for stall recovery.

By all the rules, a premature stall during the landing roundout calls for a lot of throttle in a hurry. Right! But there's more to it than that. Take a couple of sad examples.

That was no spin our friend Willie the Ace fell into during a landing on an Arizona strip last summer. Willie was approaching the ground at a relatively low airspeed. Sensing an approaching stall, Willie poured the coal on hard and fast. Result: a most awkward and uncontrollable snap roll.

Or consider Chandelle Charley.

Charley had been making a number of follow-through landings one day and everything seemed to be going nicely. At least reasonably so. Charles was prone to fly it into the ground or level off too high and so forth. But nothing had fallen off his airplane—yet.

During the landing in question, he neglected to put down his flaps until the last moment. At the same time, he decided that he would go around again. Bang went the throttle, clear to the firewall. Things began to happen.

In the course of Charley's landing practice, the pounding he gave the airplane had damaged his left flap mechanism. Consequently, only the right flap came down. With the added lift on the right wing plus a lot of rough throttle, our chandelling aviator flipped on his back. It is very difficult to execute a split "S" at altitude 25 feet.

Babying Your Engine

In flight, smooth and proper use of the throttle pays off mainly in reduced engine wear with a resultant increase in savings. Before every climb, increase the throttle setting. Leveling off? Reduce throttle to cruising position. Let-down? Ease back on the throttle. A laboring engine during a normal climb will run up those repair bills, as will excessive power during a prolonged descent. But remember to make those power changes smoothly. There is a lot of inertia involved in those little cylinders.

In regard to let-downs, I might add a word of warning. Let me illustrate with the case of Jimmy Baker.

On the way down from a morning of stall and spin practice high above the airport, Jimmy conceived the plan of coasting in without power for a try at a spot landing. Good idea, Jimmy—if you hadn't forgotten that during that long, power-off descent your engine loaded up.

Jim's approach was bad so he tried to go around. Unfortunate lad. His engine was through for the day. Piling deadstick into a corner of the field the best he could, Jimmy learned more about flying in the next two minutes than he had picked up all morning. Use that throttle to keep your engine cleared out during a let-down.

Landing Fundamentals

There are four variables connected with a landing which should always be borne in mind: 1) distance from the field; 2) altitude above the field; 3) wind and 4) gliding speed and angle.

All of these save wind are within the pilot's control. The last, gliding speed and angle, is directly related to the throttle. Actually, glide angle stems from rate of descent, which in turn is determined by the power setting.

Most pilots soon get the hang of establishing altitude and distance from the field. Glide angle, however, seems to cause considerable trouble.

To develop your skill at setting a good landing glide, climb to altitude and practice letting down to a specific level. Say you are flying at 5000′ and want to descend to a mythical landing field at 4000′. Set up your cockpit for a typical landing situation. Adjust the throttle to a desired setting. Trim the airplane until it flies at the airspeed you desire. Don't jockey, work and sweat at the stick and throttle. Leave these controls alone until you can see what is happening. If all is not right, then adjust the throttle and retrim the airplane for a new rate of descent. After some practice, you will find that most of your troubles connected with landing approach have been eliminated.

Remember what we said about keeping a hand on the throttle during take-off? Same thing goes for landing. Many a ground-loop might have been averted had a little positive throttle been applied in time. If you need two hands to horse back on the stick for landing, one of two things must be wrong: 1) you are not trimming properly for your final approach or 2) you are staying out too late at night.

One final use of the throttle—stopping the engine. Don't form the habit of high-balling onto the ramp, chopping the engine and taking off for Billy's Bistro. You'll do your engine irreparable damage.

In some respects stopping the engine is just the opposite of starting. You wouldn't think of taking off with a low indication of oil and cylinder head temperatures. Conversely you should form the habit of idling your engine at 800 to 1,000 rpm before cutting the switch. This allows for a gradual cooling. Rapid cooling may mean cracked cylinder heads or other serious harm.

Hydraulic propeller controls call for idling the engine, working the prop through its extreme for oil drainage and protection of exposed propeller actuating mechanisms. And whatever your airplane type, don't overlook this one: set the throttle for low engine speed, carburetor at full lean or idle cut-off, slowly open the throttle to full position. This clears gasoline from the carburetor and lines and cuts down the possibility of a false start in case an accidental opening of the ignition switch should fire gasoline which has been allowed to collect in the carburetor.

Treat the throttle with kindness. It will repay your consideration a thousand times over. END

"Writing on the walls is bad enough, but he was on the phone all morning with the Pentagon!"

WING TALK

1953 CADET PROGRAMS SCHEDULED

The busy 1953 schedule for the nation's 48,000 Civil Air Patrol cadets gets underway early in June with the first of 44 encampments at Air Force bases. The 1953 encampments will be of nine days duration rather than the two weeks of former years. It is believed that the shorter encampment will result in more CAP senior members and officers attending in command and supervisory capacities. The shorter encampment also lends itself to easing the tight Air Force schedule which must accommodate thousands of ROTC cadets this summer.

The International Cadet Exchange begins on July 19 when more than 100 U. S. CAP cadets embark on tours of 17 other nations. Two of the participating nations —Greece and Turkey—were added only this year. Others include Canada, Mexico, England, Switzerland, Italy, France, Brazil, Spain, Holland, Sweden, Norway, Portugal, Denmark, Belgium and Luxembourg. CAP cadets, in small groups, will visit these nations while cadets from their comparable organizations are the guests of CAP here in the U. S.

August 1 will see the National Drill Competition at Mitchel AFB, N. Y., where teams representing the eight regions of CAP will vie for the championship of CAP.

One month later, September 1, a team representing CAP will compete against one representing the Air Cadet League of Canada at the Canadian National Exhibition at Toronto for the international title and the Maj. Gen. Lucas V. Beau Trophy which was won by CAP in 1952. The International Drill Competition is one of the highlights of CAP's cadet program.

STIRRING UP A STORM

CAP people of the Indiana Wing in Indianapolis have literally been stirring up a storm of interest in CAP at home and abroad. During the last few months they have come up with some organizational achievements which have drawn the attention of CAP's national headquarters. Col. Roscoe Turner, one of the most colorful figures in America's aviation history, has accepted command of the newly-formed Indiana Civil Air Patrol Emergency Relief Unit. This unit is a 100 per cent flying unit and membership is limited to aircraft owners. The organization is made up of flights according to aircraft category. The new unit will augment the other operational units of the wing.

The first student CAP unit in the state has been formed at Warren High School in Indianapolis. Thirty-five air-minded young men and women now comprise the cadet unit. Credit is being extended by the school for sparetime study of aeronautic principles, radio, map reading, flight theory, plane spotting and other aviation subjects. School faculty members I. E. Dunn and John Turner, assisted by Maj. Russell Hollenbeck of the Air Force Reserve, have assumed supervisory duties with the unit.

Another unit formed as an activity of an institute of learning is being sponsored by the AFROTC Detachment on the campus of Butler University. It is Squadron 527-1. Several cadet squadrons have been earmarked for attachment to the new unit. WO Ronald Pauck, at one time a CAP International Exchange cadet, is the squadron commanding officer.

ALL NAVAJO GROUP

The organization of a full CAP group made up of members of the Navajo Indian Tribe in Arizona is in full swing according to Col. Dines Nelson, Arizona Wing commander. An all-Navajo squadron already has been activated. With the activation of two additional squadrons at Window Rock and Ganado the group will be activated with Maj. James Bickle in command.

* * *

Major Richard W. Burt

DISTINGUISHED SERVICE AWARD

CAP's highest service award—the Distinguished Service Award—has been given to Maj. Richard W. Burt of Ogden, Utah, director of Operations of the Utah Wing, CAP, for his untiring efforts which resulted in discovery of the wreckage of an Army-chartered C-46 *Commando* with 41 persons aboard in the Southern Idaho mountains last January.

The major, a former radio operator-gunner who spent a term as a German prisoner of war during World War II, led an interrogation team through Idaho, Wyoming and Utah during the first five days of the huge air search. Then, on his first search mission and acting on a hunch which developed as he scoured the three-state area running down tips, he took a look-see over the Bear River Mountain area before going to an assigned search square. The same area had been searched repeatedly by other planes for five days but the major's hunch paid off. He spotted the impact-shattered C-46 almost completely obscured by new-fallen snow.

* * *

Maryland Wing Communications personnel came to the aid of the telephone company serving Hagerstown when freezing rain loaded telephone wires with ice that disrupted most of the communications and power facilities in Garrett County.

MAJOR HAROLD L. WARNER (left) and Lt. Don J. Mullersman, of the Hawaii Wing of CAP, review the search route to be followed in looking for William Brown, motor patrolman, who crashed his lightplane on the island of Hawaii and was lost for three days.

CAPT. JOE KACHULIS (right), Public Information Officer for the Las Vegas, Nev., CAP Squadron, is shown with Lt. Col. Franklin L. Fisher, Training and Operations Staff Officer at Nellis AFB, Nevada, prior to take-off on a familiarization ride in a T-33 jet trainer. Capt. Kachulis has been active in CAP for two years and was a B-25 crew member in the Pacific during World War II.

Flying Down to Rio

(Continued from page 15)

scheduled landing. The other rule to success with officials is to stay away from them; i.e., what they don't know won't cost you. The local private pilot whom I met usually suggested that I stay away from custom airports as much as possible. The best example of this was at Guayaquil, Ecuador. After landing and during taxiing to the main terminal, the tower operator called me and told me that he had a message for me from a local pilot. This fellow wanted me to meet him across the field from the main terminal. He was a total stranger and was just interested in talking to someone from the States and helping in any way he could. His only information on me was what he learned by listening in on my radio communications with the tower. He suggested that I park my airplane where he kept his plane and not say anything to the officials across the field. This I did. I took off the next morning without having paid for anything but my gas and tips to those who helped me service my plane.

My major trouble with officials was in Vallenar, Chile. The airport here has excellent facilities but the hotel and town are such that one should try to avoid staying overnight. Before gassing my plane they gave me one price for their gas and after paying my bill they came back for more money. The excuse was that they had made a mistake and had charged me the Chilean price rather than the special price they have for Americans. There is a two-to-one difference, with the Americans paying twice what everyone else pays. After that we didn't get along too well.

Next morning, after spending four hours trying to get take-off clearance, I finally just left without clearance. As soon as I was airborne I tuned my radio to their frequency and I didn't have to get out my dictionary to understand that they were extremely upset about my premature departure. I realized that my reception in Santiago would not be warm and if possible I shouldn't land in Chile again. The Andes, however, separated me from Argentina.

I radioed the tower at Santiago as soon as I was in range. The operator who answered sounded like an American. I advised him that I was considering going directly to Mendoza, Argentina, rather than Santiago as scheduled, and requested weather information. He evidently had heard of my troubles and had my interest at heart because he replied, "It is *highly* advisable that you go directly to Mendoza." He then gave me the weather information about crossing the Andes. Now, however, the Andes towering up to over 23,000 feet looked less fearsome than the Chilean officials.

When I landed at Mendoza just after sunset the Argentine officials had heard of my troubles with the Chileans and considered it a good joke. The Argentines have a lot of red tape but they were fast with the paper shuffling and the delays due to officials was very insignificant.

My biggest time delay because of officials was in Brazil. My flight permit for Brazil said that I was to enter via Belem in the north rather than Porto Alegre in the south. Panair do Brasil helped me by sending wires to their people in Rio. I wired everyone I could think of, but it still took two and a half days to obtain clearance to change my port of entry.

Emergency Landings

I picked the worst time of the year, the summer, for my flight. During the summer the rainfall in Central America averages about one inch per day and it rains almost every day. When I reached Tehuantepec, Mexico, I hit this weather and for the next 10 days I was making 180's and emergency landings almost every day.

The daily bad weather is normally only encountered in the afternoon, so if one can fly in the mornings the weather presents no problem. This doesn't work, however, because one usually spends the morning clearing with officials. I did considerable flying in the afternoons.

I covered 610 miles in 180's and made landings at Tehuantepec, Managua, and LaMesa (Panama) because of the afternoon weather. There was also a landing on the beach and another on the Pan American Highway.

The beach landing was after leaving Panama. For 615 miles after Panama there are no towns, no roads, nothing but jungles. When one flies an airplane with a range less than this it is necessary to carry cans of gas aboard. This fuel can be transferred by landing on the US Air Force-built strip at Jaque, 150 miles from Panama. With a 1,000-mile range, I planned to go to Esmeraldas (705 miles) before refueling.

At Panama I spent considerable time studying weather information with the best help Pan American could provide. There was nothing to indicate that I would have bad weather. I took off at 7:46 a.m.

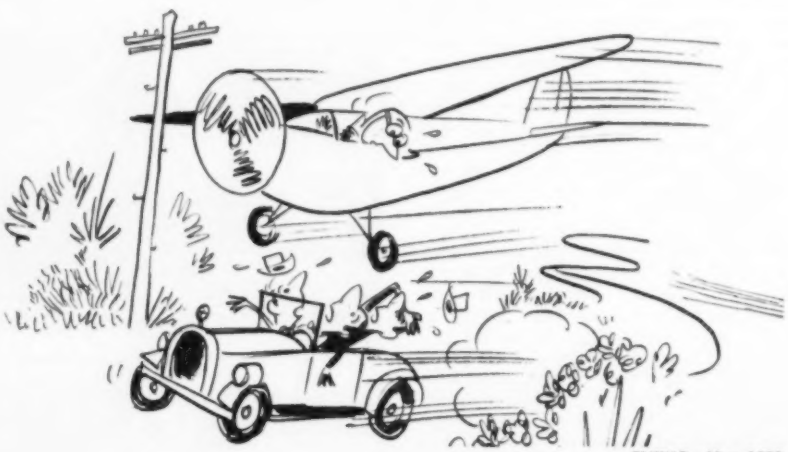
For the first hundred miles I saw very few spots that would be suitable for emergency landings but before long I saw many beaches that looked good.

By the time I was a couple hours out from Panama the weather over the ocean began to look bad but I thought it was local and that I could easily get around it. I was wrong and three and a quarter hours out I was hurriedly looking for a place to sit down because the ceiling was rapidly approaching zero. Going back looked no better than what was ahead. I spent about 20 minutes picking out the best spot to land. The Indians I had seen in my low flying hadn't looked like good company so I picked out a spot with no Indians in the vicinity. On a pass across the selected beach I found the sand hard by bouncing my wheels on it. It was as good a landing spot as I could want. I tied my plane to a log and let the wind and rain do their darnedest. It was 11:35 when I landed. I had some candy bars and a canteen of water to sustain life.

Shortly before sunset I saw a small boat of natives heading for shore. Since my only weapon was my Boy Scout knife I got my plane ready for a quick move down the beach. This turned out to be unnecessary because they were friendly —all 11 of them. They had food and brew so we had a gay party under the wing of the plane, complete with native singing and dancing. Next morning I had breakfast with my new friends, then took off for Esmeraldas.

My landing on the Pan American Highway was near Lima. For a large part of the year a fog blankets Lima and the surrounding area. The ceiling during this time is usually 500 to 1,000 feet. I was trying to make Lima under this blanket of fog but the ceiling kept getting lower and lower. Flying just off shore, I found myself so uncomfortably low that I was detouring around some of the rocks sticking above the water. I decided that I had better sit down for a while to see if the ceiling would lift. There were a number of emergency fields not very far back but the Pan American Highway ran right along the shore with practically no traffic. After making a low pass over a long, straight stretch, I landed. An hour later the fog lifted enough to make flying look attractive again.

The only thing wrong with using the highway for a landing strip, besides the auto traffic, is the closeness of the telegraph poles. Although some of the Pan American Highway is suitable for emer-



gency landings, much of it is nothing but very rough dirt roads.

Equipment

My only transmitter was the GE radio that is standard Cessna equipment. The 3105 kc frequency is guarded by practically all the control towers. It is not, however, guarded by the other radio stations. Unless one speaks Spanish it doesn't help to contact most of these stations because English-speaking operators are not available.

I also took along a Lear portable receiver because in studying the USAF Radio Facility Charts I noted that many of the towers transmit 3105 as well as other frequencies in the 2000 to 6000 range. Also most of the ground-to-air stations transmit in this range. Practically all of what I picked up was in Spanish, so it didn't help me. Several times I picked up English transmissions from Pan American flights and other American piloted airlines. The Lear gave me excellent reception and I am very happy that I took it along.

My only other radio equipment was a Lear loop which is the minimum homing equipment that any plane should have flying around South America. There are practically no range stations. Most of the stations on which to home are broadcast stations which now and then embarrass one by going off the air just when they are needed. This happened to me when I was over the jungles of Mato Grosso. Siesta time came around and the only station to home on went off the air just when I decided I was lost.

My only other special equipment was an extra fuel tank. Since I was making the trip alone I decided to utilize the extra load-carrying ability by putting in an extra tank. I sketched out a design, went down to the tin shop and, for 20 bucks, I had a 22-gallon tank that fit in place of the co-pilot's seat, held in place with an extension of the safety belt, and with a flat top which made an excellent plotting table for navigation. I connected the tank to the fuel system by putting a tee in the drain from the fuel strainer.

An electric pump connected to the navigation light switch was used to transfer the fuel. It was vented by a plastic tube that went outside the cabin through the fresh air vent. The entire system could be installed or removed in five minutes. The capacity of the extra tank plus the 25 gallons in the regular tanks gave me a range of 1,000 miles at normal cruising speed. I was soon convinced that such an extra tank is the most valuable co-pilot one can have. It reduces the number of landings necessary and thereby the expense and delays due to officials. They can't put the bite on you as long as you are in the air.

Airport Facilities

All the airports at which I landed were entirely satisfactory for any lightplane. Gasoline of 73 to 80 octane was available at the majority of the airports. In order to obtain this gas at some of the airports, however, I had to make a deal with the local Aero Club. At Mazatlan, Tehuantepec, Managua, Esmeraldas, and Chiclayo the only gas available was 91 octane. The high lead content of this fuel did not give any trouble from spark plug fouling or otherwise. The average price for all the gas purchased on the trip down was 36 cents per gallon with a maximum of 82 cents at Vallenar, Chile, and a minimum of 20 cents at Santa Cruz Airport in Lima.

Everywhere I went in Mexico, Central and South America I found the chamois filtering of gasoline standard practice, no matter how big or small the airport. The only exception was Panama where Stateside facilities were available at Paitilla Airport. No matter how poor a South American airport might be, they always have a chamois for filtering the fuel, even if they only have a bucket for fuel handling. One is therefore assured of obtaining dry and clean fuel even though there may often be some question as to its quality.

Weather information was obtainable at

Korea's Own Buzz Boys

(Continued from page 27)

of a situation."

The Korean aviation force has been used advantageously in "Operation Strangle," aimed at cutting enemy communications and supply lines. The Air Force officers who have seen the pilots in action describe them as "near perfectionists with rockets. Their bombing record—near tops for the entire Fifth Air Force—speaks for itself."

The Korean pilots eventually hope to do some close air support work as practiced by the Marine squadrons operating off the same field. The Leatherneck pilots are currently furnishing the air support for a unit of Korean Marines with U. S. Marine officers attached to the front line fighting units. The forward air controllers stationed with the Korean Marines have been First Marine Aircraft Wing pilots assigned to the duty.

Because of the language barrier, the Korean pilots have not been allowed to do the close air support work of bombing and strafing enemy positions just ahead of friendly troops. Neither have they been allowed to carry out such work with the ROK Army troops, for the T-6 spotter planes which direct such strikes for this group are invariably flown by Army or Air Force personnel.

"Where a slight misunderstanding might result in countless deaths to our own troops, there is no point in taking a chance," points out a spokesman.

Insofar as tactics are concerned, the advisers again praise their "students." The Koreans, they claim, are quick to evolve tactics of their own, combining them with those taught by the U. S. Air Force.

"There is no effort made to make them pattern their own tactics after ours," it is explained. "These boys have too many good ideas of their own."

No Place to Hide

The American pilots also have discovered that their Oriental charges have it all over them in spotting camouflage. When something is out of place on the familiar Korean landscape, they spot it immediately.

General Kim Chan Yu, chief of staff for the ROK Air Force, flew for the Japanese during World War II. Serving in Java, he commanded a squadron as a captain. General Chang Duk Chang, another Korean pilot who learned most of his flying under the Japanese, has more than 10,000 aerial hours to his credit. Major Kim Tee, the first man in the ROK Air Force to rack up 100 missions in the *Mustang*, was a Zero pilot in the last war. Colonel Kim Shin, commander of a Korean fighter wing, fought on the other side. His father was a leader in the underground movement against the Japanese. The colonel managed to escape from the country and was trained by Chinese forces and later in India. It was he who flew with the "Flying Tigers" in the days before the United States entered the war and that unit became part of the 14th Air Force.

Despite the fact that the unit is headed by these men of experience, the average age of the pilots is only "23 Korean." (With Koreans described as being one year old when born, the true average would be a year less, or 22 by our standards.)

This younger age bracket has some heroes of its own. Outstanding among these is Captain Ock Man Ho, who was awarded the Silver Star by our own forces.

Flying a T-6 observation ship, Captain Ock was trying to get an American general to an important conference during the height of a battle. The weather was bad and the pilot was running low on fuel, when he found an air strip which was at that moment the subject of a bitter battle. Despite this he landed and, while the general waited, found an old can and a wrecked C-47 transport which had been abandoned at the edge of the runway.

Ock siphoned gasoline out of the wrecked transport, returned to his own plane to fill the tanks, then took off despite the bad weather and heavy enemy small arms fire. He delivered the general to his destination.

Ock, a youngster of the "Joe College" variety (the name tied to him by his American associates) doesn't look like a hero. Wearing the self-assured smile that goes with the college senior's pipe and saddle shoes, he has one burning desire. To pilot jets.

Bridge Busters

On occasion, the South Korean airmen have caused their big brothers to bow their heads in respect. Take, for example, the case of old Iron Ribs, a bridge that defied destruction.

Located in a deep canyon and flanked by communist anti-aircraft on all sides, the bridge had been the target for more than 500 sorties. All had failed to knock it out. Finally, someone (allegedly as a joke) suggested that the South Korean pilots be given their turn. With a 14-plane flight, they broke three spans in the troublesome structure. END

practically all the airports from the local government operators. Whenever possible, however, I depended on Pan American for weather data. Where I had my trouble with weather the available weather information was of practically no help because the weather changed so rapidly, or because they often didn't have weather stations in the direction from which the weather came. I obtained the most valuable weather information before I left the States. Very complete average monthly weather data for Central and South America can be obtained from Navy reports available at AOPA. I made rather extensive notes on the average weather at the points along my route. Of greatest value was the winds aloft report whenever I couldn't obtain local readings, which was most of the time. This turned out very well because the actual winds are usually very close to the average winds.

Although I did not need the services of a mechanic, I noted that one wouldn't have trouble finding a reasonably qualified mechanic at all airports of any size. I had no difficulty obtaining tie-down facilities. Whenever I left my plane overnight at an airport that didn't have adequate guards, I hired a native to sleep under the plane. The cost of this service was less than the night parking charges at any U.S. airport.

Obtaining taxis from the airport to a hotel was never a problem, nor was trouble experienced in finding adequate hotel accommodations. Prices of rooms ranged from 75 cents to 10 dollars.

Private Flying in Brazil

The Brazilian Civil Aeronautics Department showed unusual consideration and gave me a special permit to operate my plane on my U.S. pilot's license and registration. I flew 15,000 miles around Brazil during my 18-month stay. It is a beautiful and interesting country. Brazilians are very air-minded and air transportation is extremely important to their country. Brazil has some 700 airports.

Much of the interior depends heavily on air transportation because other forms of transport are either crude or nonexistent. A rancher who wishes to go to town usually calls an air taxi, and as a result the air taxi business thrives. Cessna 140's and 170's are most popular for this use.

Brazilian civil air regulations take much of the pleasure out of private flying. Flight permits are compulsory even for local flights. Flying between official sunset and sunrise is not permitted except for multi-engine ships flying IFR. Landing on anything but approved airports is illegal. Of course, in the interior there are no officials and anything goes.

I paid nothing for landing, tie-down, or even hangar space. Gas is low in price. In Rio I paid about 24 cents per gallon for 80 octane at the open market rate of exchange. In the interior I paid as much as $1.25 per gallon.

Air navigation in Brazil is good. The average weather is considerably better than in the States. The country is relatively flat, with the highest spot only a little over 9,000 feet. There is only one radio range station so a loop becomes a must. Broadcast stations are the main homing points.

I had one of those "I Learned About Flying" experiences when I got lost in the interior. It was during a trip a friend and I made to hunt tigers and wild boar in the state of Mato Grosso. Incidentally, Brazilian tigers are every bit as big as the African variety. Heading for a little town near the Paraguay border, we were over flat jungle country with practically no landmarks and where the air charts were very inaccurate.

I calculated my ETA, checked the radio to be sure I could receive the radio station at our destination, then sat back and relaxed. There was no town in sight when my watch read my ETA. The ceiling was about 1,000 feet and the visibility poor. I turned on my radio to home in but the station had gone off the air. I went through the standard procedure of visual hunting but without success.

We decided to land on the first landable spot we saw, since we wanted to save enough gas to get to our destination once we had determined our position. The spot proved to be the backyard of a ranch. After making a very short landing, we measured the distance between fences and found it to be 417 feet. The place was teeming with heavily armed men. Three of them spoke excellent English and from them we learned that we were 50 miles over the border in Paraguay. They said they were hunters but

(Continued on page 47)

NATIONAL INTERCOLLEGIATE AIR MEET

By Gene C. Bauer and Otis W. Bergman

The Annual Air Meet of the National Intercollegiate Flying Association will be held May 8 and 9 at the new Anoka County Airport, north of the Twin Cities of Minneapolis and St. Paul.

Entry blanks filed with NIFA President Joe Barnes and his Air Meet Committee indicate that the meet will be the largest held since the war.

Competitive events, planned for the average private or student pilot skill level, will include 180° power-on spot landing, 180° power-off side approach spot landing and bomb-dropping, plus a fourth event of the individual choice of each flight team entered. For this last item on the program, Tommy Bartlett, radio and TV personality, has offered a $100 prize to the school introducing the best new event.

NIFA is an organization made up of college and university sponsored flying clubs, from all over the U.S. It is strictly an amateur organization, many of whose members are planning on aviation careers after college.

Skill, safety and sport are the objectives of the clubs. Members range from student pilots just learning to fly, to experienced pilots with commercial ratings.

NIFA is an outgrowth of the prewar National Intercollegiate Flying Club which was started in the late '20's. NIFC was forced to disband during the war, then was reorganized under its present name in 1949. The first post-war air meet was held that year at Eagle Mountain, Texas. Texas Christian University was largely responsible for the revival of interest in the club and was host for the first meet.

Subsequent annual meets have been sponsored by the clubs at Stephens College, Columbia, Mo.; the University of Oklahoma at Norman, and Oklahoma A & M at Stillwater. This year NIFA headquarters are at the University of Minnesota, Minneapolis. The U of M Flying Club, headed by Ken Thompson, is in charge of arrangements.

Trophies presented at the 1953 Meet will be given to each of the top three teams, to pilots placing first, second and third in each event; to the male and female pilots with the highest accumulation of personal points; to the club flying the greatest number of passenger air miles en route to the meet; and to the team showing the greatest care in the handling of aircraft on the ground and in the air.

Trophies for the meet, as well as costs of fuel, housing, transportation, etc., are financed through the cooperation of aviation and other companies.

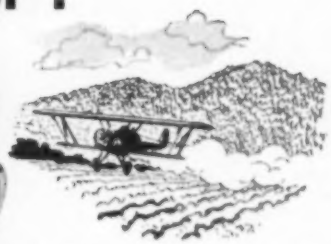
Full details of the 1953 Meet are available from Joe Barnes, NIFA President, % University of Minnesota Flying Club, 349 Coffman Union, U. of Minnesota, Minneapolis 14, Minn.

PLANE FAX

Case-history reports on performance tests with New RPM Aviation Oil!

Here's what western flight experts say about the new "RPM"!

Ivor Witney of the San Francisco Sheriff's Air Squadron says: "In more than 24 years of flying, I have found no other aviation oil to compare with the new 'RPM.' Tests over a 26-month period show it gave lower oil temperatures, and my light plane engine ran smoother than ever before."



J. L. Rich, President of Farm-Air, Inc., of West Sacramento, California, reports: "The new 'RPM,' tested in our aircraft used for crop dusting, ended our trouble with sticking rings and valves, reduced lay-up time. Inspection proved the engines stayed clean through the season. All our aircraft now use the new 'RPM'."

A. L. Sharp, Manager of Gardena Valley Airport, Inc., Gardena, California, says: "Our tests show that the new 'RPM' proved to be the best aviation oil we've ever used—both from the standpoint of keeping the engine clean and a minimum of engine wear after 1300 flying hours."

Wally Thompson, owner of Thompson Aviation, at Sonoma County Airport, Santa Rosa, California, says: "We've been using the new 'RPM' in three of our aircraft for over 15 months. Our experience with the new 'RPM' shows lower oil consumption and temperature, cleaner engines and non-fouling of plugs and elimination of detonation and pre-ignition."

T. M'S "RPM", "CHEVRON," REG. U.S. PAT. OFF.

TIP OF THE MONTH

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AIRCRAFT OWNERS AND PILOTS ASSOCIATION

AOPA NEWS

Aircraft Owners and Pilots Association is a service organization for the private pilot or aircraft owner. AOPA's full time staff is devoted to helping the individual pilot. Its aim is "To make flying more useful, less expensive, safer and more fun."

Headquarters address is Box 5960, Washington 14, D.C. Members also receive a special AOPA edition of FLYING, newsletters and confidential aviation data. Opinions expressed in this column are not necessarily those of FLYING Magazine.

WEATHER STUDY

Specially-designed reporting cards were distributed to all pilots throughout the United States during February by AOPA, the U. S. Weather Bureau and the CAA. The cards were part of a special project worked out by the Weather Bureau and AOPA, in an effort to pinpoint weather-reporting and weather-forecasting deficiencies so frequently complained of by pilots.

The special cards, which were distributed to all AOPA members automatically, and made available to other pilots at Weather Bureau and CAA offices around the country, were designed to give a detailed report on just what weather information the pilot was given, and what weather he actually found when he got there. The card also showed the source of the information received, how it was received (by phone, radio or in person), and the pilot's comments.

Weather Bureau officials reported to AOPA that large quantities of the cards began pouring in promptly on February 1, and continued to do so throughout the month. While it is still too early to know the results, the cards are now in the process of being tabulated, and an exhaustive study will be made by Weather Bureau experts once the tabulation is completed.

The Weather Bureau chose the month of February for its checking period, although there is not as much civil flying being done then as there would be in the spring or summer. However, February was chosen largely because it is a bad-weather month, hence would best test the Weather Bureau's operations.

This project had long been one of importance to AOPA, because of the continuing volume of civil plane accidents due to unknown or unexpected weather, and the constant stream of complaints from AOPA members about the inaccuracies of the weather-reporting and forecasting services. The Weather Bureau and AOPA agreed that such a reporting card might be an excellent means of tracking down some of the reasons for the complaints.

While the present AOPA-Weather Bureau project is only for one month, AOPA still is considering producing its own permanent weather-reporting card, to be used by AOPA members throughout the year, just as AOPA's airport-reporting card has been for several years. AOPA feels such a permanent type of weather card may be needed to help locate the system deficiencies throughout the year, in all seasons.

PHONETIC PHUROR

The U. S. Government agencies concerned with the new phonetic alphabet now admit officially that they are trying to overhaul the alphabet in an effort to overcome widespread opposition to it throughout the world. In the U. S. there is another expensive project under way, this one by the Air Force, in an effort to make a scientific study of the alphabet and its deficiencies. The Air Force has hired civil scientists, under contract, to again look into the matter.

Meanwhile, there is almost universal opposition to the new alphabet everywhere in the world. In the U. S., AOPA has consistently warned its members that the new alphabet is so awkward and confusing it's dangerous, and have advised members to stick exclusively to the old Able-Baker-Charley alphabet.

AOPA is far from being the only opponent of the new alphabet devised by ICAO (International Civil Aviation Organization) in Montreal. In the U. S., for example, the airline pilots have refused to use it—as have the international airline pilots elsewhere in the world. And the U. S. Navy has vigorously opposed it from the beginning. AOPA checked with the Navy in Washington recently, and found they are even more strongly opposed to the new alphabet now than they were in the beginning.

Elsewhere in the world the opposition appears to be just as strong. AOPA recently checked with a number of comparable aviation organizations throughout the world, and found a startling similarity in the pattern that was used to "railroad" the new alphabet here:

1. Not one organization AOPA contacted indicated that they, or any of the airspace users they knew of, had been consulted in advance of the alphabet's adoption.

2. Apparently none of the airspace users were represented in the planning of the new project in Montreal.

3. The new alphabet was arbitrarily put into effect without consultation, and despite protests.

4. The various governments responsible for promoting the alphabet attempted to overcome the users' objections by force, simply by ordering all affected government employes to use the new alphabet exclusively, while telling the protesting users that they were still free to use the old alphabet if they wished. The result has been such wholesale dangerous confusion that the matter now has come up for official study.

AOPA recently advised U. S. officials responsible for the alphabet that it is continuing to recommend only the use of the old alphabet, and has urged that the Government immediately go back to it officially and stop wasting money trying to save face with still a third alphabet, which currently is in the works.

PITTSBURGH

Because of numerous complaints from AOPA members, AOPA has been protesting the discriminatory practices being used against non-airline civil aircraft at the new Greater Pittsburgh airport. As the result of AOPA's repeated protests to the CAA, which has jurisdiction over discrimination at any airport built with Federal funds under a sponsor's assurance agreement, CAA officials from Washington, New York and Harrisburg, and an AOPA official, recently met at the new airport to study the problem, and discuss it with Pittsburgh officials.

As the result of that meeting Pittsburgh officials have now agreed to the following:

1. Temporary tie-down facilities will be installed immediately, pending completion of permanent tie-down facilities.

2. Gasoline suitable for the use of non-airline aircraft will be made available shortly.

3. A teletype drop from the weather station now at Greater Pittsburgh airport will shortly be installed at Allegheny County airport, the old Pittsburgh terminal recently evacuated by the airlines.

4. Pittsburgh officials will immediately study the regulation adopted by Miami International Airport in 1950 which permits civil aircraft to land on the field free of a landing fee, in order to use the Federal facilities (Weather Bureau, CAA) on the field. AOPA has supplied Pittsburgh officials with the text of the Miami regulation.

Flying down to Rio

(Continued from page 44)

we suspected they were revolutionists. They didn't cheer us much by telling of another foreign plane that had landed in their country three years back and the owner was still struggling with the red tape to get it free.

Deciding to get back into the air by any means, we did our best to lighten the plane by throwing out our game, can of oil, etc. Luckily I had a chart of take-off distance vs. density altitude, gross weight and other factors. Some of the data came from flight tests I had conducted. Our density altitude was over 2,000 feet and there was no wind.

It didn't take long to figure that we couldn't take off without additional changes. We paid 10 U.S. dollars to have one of the fences taken down and to have the tops knocked off the highest trees. My calculations said we could do it by dumping the flaps at the right time. We decided if we waited around to build a longer strip the officials would tie us up with red tape. In this case we would no doubt end up having the airplane hauled out. If it was to be hauled out anyway, it wouldn't hurt to have it bumped around a little first.

Taking a deep breath, we got set for take-off. The brakes were held until the rpm reached a maximum. Half way down the field there was a great temptation to cut the throttle and measure the distance again; it couldn't be more than 300 feet! Next I had to force myself to hold back on dumping the flaps until the prop was just about to start cutting brush.

Needless to say, we got off. We did, however, drag our wheels through a lot of brush before we were fully airborne. Ten feet of vines was hooked on one wheel and 20 feet on the other.

The average Brazilian pilot is very friendly and will do anything to help a fellow private pilot. The first private pilot I met in Rio was Anesia Pinheiro Machado. She was always helping me with the Brazilian red tape and the many problems a foreigner meets in any country. Miss Machado is Brazil's most famous woman pilot and was the first woman to fly in Brazil, back in 1922. After I told her about my flight she said she would like to make the trip. Shortly afterward she bought a *Super Navion* in the States and flew it to Rio, taking the same route I did. She told me it was by far the most interesting flight she ever made. I am sure you will feel the same way when you make the trip. END

OKLAHOMA AIR FAIR

Will Rogers Field, Oklahoma City, Okla., will be the scene on May 8, 9 and 10, of an Air Fair celebrating the 50th anniversary of powered flight. The program will include static displays and flight demonstrations depicting a half century of progress in military, air transport and private aviation.

Aeronautical Engineering

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NOTE—Cal-Aero Technical Institute is a subsidiary of Grand Central Aircraft Co.—world's largest maintenance and overhaul facility—now engaged in the giant B-47 Jet Bomber program. Cal-Aero carries foremost recommendations and approvals from military, governmental, educational sources and the Aircraft Industry. Cal-Aero engineering graduates are in heavy demand and in addition are qualified educationally for Officer Candidate, Air Force and Naval Aviation Cadets.

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✔ **FRANK R. SEERY, NORTH HOLLYWOOD, CALIF.,** says: ... "employed in engineering 3 years ... enrolled at Cal-Aero 1948, graduated 1950 ... immediately employed by consultant engineering firm, at salary considerably greater ... than prior to my enrollment."

✔ **ROBERT A. OLSON, GLENDALE, CALIF.,** says: ... "3 months since I graduated from Cal-Aero ... no previous engineering experience ... well satisfied with my job ... base pay is over $350.00 per month ... it's by no means tops as there are opportunities opening up."

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name _____ age _____
address _____
city _____ zone _____ state _____
High Sch. grad.—yes ☐ no ☐ veteran ☐ non-veteran ☐

FLYING FARMERS

By BILL RENSHAW

CHERCHEZ LA FEMME

Women folk generally have retarded private flying—there was always new furniture, a fur coat, things for the kids, along with a host of less important items.

Dad's talk about buying an airplane was often "scotched" by Mama, who pointed out that there "are a lot of things we need worse than we need an airplane."

The Flying Farmer movement bids fair to change all of this. Farm families act in unison.

The first airplane ride usually involves the entire family. If the lady of the house likes it she votes "Yea" instead of "Nay."

At the recent joint Indiana-Illinois F.F. clinic, women participants presented a stronger case for the airplane than did most of the men. Said Illinois F.F. Mrs. Carl Thorp, "We want to bring aviation within reach of every boy and girl in America. In their hands it can become a force for friendship and peace."

A resounding "amen" from the women in attendance presented a challenge that the men say "we will answer with a plan."

★ ★ ★

COURTING RANGE

"My dad's courting range was about six miles—he used a horse and buggy. My husband's courting range was 30 to 50 miles—he used an automobile. My son's range will be 150 to 200 miles." Thus did Mrs. Fern Watts, Illinois F.F., bring down the house at the joint Illinois-Indiana F.F. clinic.

"The airplane will," Fern added "make it possible for my boy to go courting and possibly marry a farmer's daughter up in the good black soil section of Illinois.

"Marrying into a community where the soil is worth $600 per acre as compared to our section where the top price is about $100 per acre, is just good hoss sense," Fern concluded. To which this columnist adds, "Private planes will come into their own once we can get farm boys to go 'courtin' in a flying machine."

★ ★ ★

STATE BOARDS VITAL

Flying Farmers the nation over believe that State Aeronautical Departments are vital to the success of aviation, but they want them kept out of partisan politics. They believe Indiana set a good example when the governor retained a director of opposite political faith, because he felt he was the man for the job.

A survey made recently by this column shows a ground swell of proposed aviation legislation that may either wipe out many state agencies or reduce them to paper work bodies. Most F.F.'s contacted agree with Byron Grant, Alabama F.F., who replied, "Let's enlarge them rather than reduce or abolish them."

★ ★ ★

YOUTH'S AGE

"In this generation the children run the home." With those words Dorothy A. Woodward, past president of South Dakota F.F.'s, answered our query, "Should aviation he taught in our schools?" Explaining her answer, Mrs. Woodward added, "Farm folks just can't be old fashioned anymore; their children won't let them."

Instead of teaching young folks aviation today so we will have an air minded populace tomorrow, F.F. Woodward would give them aviation courses from the 4th grade on up, so that they could go home and sell Mother and Dad on flying, thus moving up this air minded thing we all talk about by one generation.

★ ★ ★

PRACTICE DISCOURAGED?

Illinois Flying Farmers are still wondering why civil defense officials, since retired, discouraged simulated disaster flights on the part of private pilots.

After one splendid civil defense flight, Flying Farmers were told that it would be better if they refrained from holding any more such exercises on the grounds that "they might want to operate too much in the light of lessons learned by such flights."

Flying Farmers of the "sucker state" are asking new civil defense officialdom to re-examine the value of practice flights. "The potential is still here," says State F.F. President Elmer Pattison.

★ ★ ★

AWFUL EXAMPLE

Flying Farmers as a whole are peaceful people. They fight back only when a principle is involved.

Letters from leading F.F.'s in 16 states say in substance, "We aren't spoiling for a scrap with CAA but we do wish its face-lifting program would take several more steps."

Mid-western F.F.'s are working on a bill of particulars that they feel will help CAA make corrections needed as of 1953.

They are well pleased with the expanded cooperative attitude employed by CAA in recent months. They feel confident that great improvement can be made far short of a name calling contest, which has been used too often in the past.

Pending a "bill of particulars," Flying Farmers of the mid-west say, let's get busy on some of the problems which lend themselves to fairly easy solution.

The mention of just one word, "medicals," figuratively speaking, raises the blood pressure of many pilots.

The following is beyond a doubt the exception rather then the rule, but the very fact that it could and *did* happen is proof that some changes should be made.

Writing from Dexter, Mo., O. G. Edwards, agriculturist, says, "One of my physicals cost me $75 just because the girl who was copying the examining doctor's findings misunderstood one word when taking my blood pressure.

"The physical was disallowed, so I inquired as to how I could clear the case.

"The doctor making the physical offered to go to Kansas City with me and make an affidavit that there had been an error, but this was not accepted.

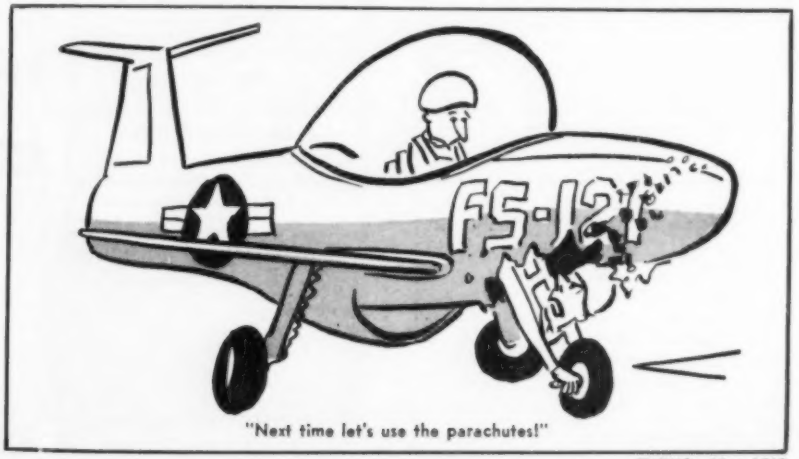
"I was told to have an electro-cardiograph made, which I did at a reputable hospital. An M.D. who was a heart specialist read this and stated that it showed no sign of high blood pressure.

"This was mailed in with another doctor's physical, and was promptly turned down.

"I then went to a third doctor for a physical, and did not tell him I had any recently. He found no trouble.

"Finally I was invited to come to Kansas City to take a physical, which was approved. While this last physical was free, I was out $75 and much worry and aggravation."

F.F.'s, write your own editorial.



"Next time let's use the parachutes!"

AVAIL YOURSELF OF AOPA'S NUMEROUS PILOT BENEFITS!

AOPA Member A66114
MAURICE F. COURTRIGHT Says

"I am writing this letter to thank you for your prompt reply to my request for helicopter school information. Your prompt action on all my requests has proven beyond doubt that a pilot who does not hold AOPA membership is depriving himself of many services which make flying far easier and safer.

"I am enclosing my 1953 membership dues. My registration is not up until December, but I am returning to the states for discharge from the Air Force next month and I do not want to take any chance of forgetting to renew for the next year during the process of returning to civil life and getting myself and my family settled.

"Thank you again for all your very fine services. I will always be one hundred percent behind AOPA and all its undertakings."

Member Maurice F. Courtright, an electronics technician, started his flying career in 1941. During the War, he served in the United States Navy and upon discharge in 1945, resumed his flight training. Maurice currently holds a Commercial pilots certificate with single engine land and sea ratings.

Courtright recently spent a tour of duty with the Air Force in Alaska and returned to civilian status just last December. He worked with the CAP in Nome and also took time to do some Alaskan bush flying.

Whenever he flies, Maurice wears the AOPA wings on his jacket and relates, "The patch has led to a great many friendships and provided me with a lot of extra services when flying away from home."

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Full ***active membership*** in AOPA is available at only $10.00 per year—less than 3c per day. The personal accident insurance alone has a value of $3.50 the first year, increasing to $5.00 for the fourth and every ensuing year. 30c of the member's fee is paid to the AOPA Foundation, Inc. for air safety and research. (Those who do not wish to make this voluntary contribution to air safety may remit $9.70 in lieu of $10.00.)

Enjoy membership in the world's largest and friendliest pilot group which continuously protects and fights for your flying interests in government and other circles.

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I would like to apply for ***Active Membership*** in AOPA. Enclosed please find my check or money order in the amount of $10.00.

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Pilot License Number.....

Ratings.....

I first soloed an airplane at.....

Date of First Solo.....

I own aircraft, registration number.....

Make.....Model.....

Signature.....

IMPORTANT

I understand that I am to receive a $700.00 flying-only personal accident insurance certificate. (Restricted to the United States, its possessions, Canada and Mexico.)

.....
Name of Beneficiary

.....
Relationship

($2.00 of each year's dues are for my subscription to the AOPA edition of FLYING)

Tuttle Report

(Continued from page 22)

arrived at Ft. Myers at about 7 in the evening.

Jack met us, drove us to his home and we had an unforgettable meal of broiled pompano. Jack was a marvelous host, and in every detail our entire stay with him was perfect. My guests had to be back north on Tuesday, having left on Thursday, so we made the return trip Monday. Due to fog, we were unable to leave Ft. Myers until 10:30 a.m., so did not reach home until 10 p.m., covering the last lap, from Raleigh, at night. This, too, was most impressive, the air being so clear the lights of all the cities on our route were visible for a distance of about 50 miles.

I have, on a number of occasions, taken various customers and their families for short rides, and in every instance they have repeatedly expressed their appreciation. Such passengers have included Henry Wittel, Al Murrell and his daughter, Ralph Reeves and his son, Mr. and Mrs. Chris Shepherd, and McGinnis of Union Bag in Savannah, together with his wife and two children, as well as perhaps a dozen others. I have taken various of our own personnel and occasionally customers on trips, some long and some short, mostly business but occasionally pleasure.

Last spring, I flew to Little Falls, N. Y., on a Friday afternoon, picked up Reg Cone, president and general manager of Reed Tissues Corp., and together we flew to Albany, where we picked up Wade A. Morehouse, president, and Harold McMillan, production manager of Cohoes Envelope Co. One hour and 34 minutes later, we arrived in Portland, Me., from whence we went on to Sebago Lake, for a week end of fishing for landlocked salmon. On Sunday afternoon, I brought these people to their respective homes, and was back at my own home before dark. I must confess I derived a certain pleasure from the trip down from Albany, which took an hour and 20 minutes, when I came over Route 17, jammed for miles with bumper-to-bumper Sunday traffic.

Regarding the tangible economic aspects of this personal plane travel, it will be recalled that the original, tentative figure of 6.5c per road mile, was increased to 10c per road mile, following the summary of the figures covering the first year's operation. The second year's operation apparently comes close enough to a satisfactory balance to indicate that the 10c per mile figure should stand for at least a second year, before any further change is considered.

Personal Needs Vary

I think I can continue to operate this plane satisfactorily on this basis, barring further inflation, although for personal reasons I may find it desirable later on to use a larger plane, in order to accommodate my family. My three daughters are growing and will not comfortably fit in the rear seat of my present plane indefinitely. Eventually, a smaller plane would again probably meet requirements, although I do not feel I should have less than a four-place plane, for business requirements. As a matter of fact, there have been occasions when I would have liked to be able to accommodate larger loads on business trips, but I am sure this would have been the case even if I had a DC-3.

Total figures covering my second year's operation are as follows:

Total number of trips	70
Total number of hours flown	276
Total number road miles covered	34,990
Total number passengers carried	58
Total operating expense (gas & oil)	$868.30
Total Maintenance for year	207.84
Hangarage for year	300.00
Total Insurance and miscellaneous	445.88
Total cost of year's operation	$1,822.02

The foregoing does not include depreciation or interest or investment, nor does it include outlay for equipment, improvements, etc., which totaled for the year involved—$758.64.

Added to the price of $6,500 which I paid for the airplane in November 1951, this brings the total value today to $7,258.64, less depreciation.

Some interesting comparisons between the first year's operation, covering the period from 9/18/50 to 9/18/51, and the second year's operation, 9/18/51 to 9/18/52, are shown below:

	1st year	2nd year
Length of average trip in road miles	312	492
Total number passengers carried (business only)	46	58
Total days of my time saved, vs. car	42	56
Total days my time lost, because of weather	1½	½
Net days my time saved, for year	40½	55½
Hotel bills saved, vs. car travel.	37	63
Number meals saved, vs. car travel	130	179
Total hours traveling time	187:20	276:00
Total road miles covered	21,846	34,990
Average speed, road miles per hour	116.6	126.7

For the second year, an accounting of the number of *passenger* miles flown, was kept, and this shows the total number of *passenger* miles flown during the second year to be 54,365. Thus, at the mileage allowance figure of 10c per road mile, for the plane, the cost per passenger mile during the second year's operation was .06436 per mile.

The total cost to the Company of my airplane transportation during the past year was $3,499. For this the Company received:

34,990 miles of air transportation for me;

55½ days of my time saved, over same transportation by car;

$1,174.80 value of air transportation provided for others during year, figured at

PILOT AID

BY BOB BLATT

OIL DRUM TEE AND SOCK

This combination wind tee, landing direction indicator and wind sock was made from materials on hand—things that would be found at most any airport, according to Marvin L. Heidbreder, Manager of Doc's Airpark, Quincy, Ill. It has been very satisfactory and has withstood winds up to 95 m.p.h.

Plans for this combination device were furnished by the Aviation Section of the Missouri Division of Resources and Development. All welding and construction work was done by the operator, while the wind sock was supplied by an oil company. The tee was made by welding together 11 55-gallon used oil drums—six were used for the long section and five for the shorter section, making the tee approximately 17½ by 15 feet.

The tee is balanced on an old car rear-end and axle filled with oil. A two-inch welded angle iron frame supports the tee and ½ inch steel plate is drilled to fit the axle. The axle is firmly imbedded in a concrete foundation. A 16-gauge sheet steel fin, six feet long and two feet high, is welded on top of the tail. The fin is reinforced at the edges by ½ inch rod supports. In order to provide the proper balance, about 150 pounds of sand were put in the center barrel of the short section.

The tee is normally free to swing with the wind, but if it is desired to lock it on the active landing strip, a steel rod is provided at the rear which may be raised or lowered to the ground. In the lowered position it engages pipe sleeves flush in the ground.

To make the tee more visible, it is painted with alternate white and orange stripes. The wind sock pipe is slipped down into the supporting axle through the drum. A 50-foot diameter white circular marker surrounds the tee—making it much more easily seen from the air.

Shown in the picture with the combination tee are Mr. Heidbreder (left) and Glen Boyd of the Missouri Division of Resources and Development.

average airline rates;
179 meals saved, for me. Figured conservatively at $1.50 each, the value of these is: $268.50;
63 hotel bills saved. At $4 each the value is $252.

The total value of my time saved, the air travel provided for others, and the savings on hotel and meals is $3,915.30. If a direct comparison with auto travel were to be made, the mileage would have to be figured on the basis of 6.5c per mile, for value received, rather than on the 10c per mile basis, so that to the foregoing total of $3,915.30 should be added (.065 x 34,990) or $2,274.35. The actual cash value received by the Company, for its expenditure of $3,499, therefore totals $6,189.65.

It may be argued that a comparison should be made with commercial air travel rather than with a car, but an analysis of each trip shows that, of the 71 trips covered for the year, 37 of them could not have been made by commercial airlines, since they were to points "off the beaten path," and not served by the commercial lines.

Airline Time Matched

However, by way of comparing my use of my own plane with commercial travel by air, it has been interesting to me to find that the total time consumed is usually no more by my own plane than by airlines, in spite of the fact that my plane is slower, in actual miles per hour. This is accounted for by two main reasons. First, I normally go non-stop. Second, I leave from an airport only 20 minutes from my home. For these reasons, my plane has frequently saved me considerable time over even the best airline times, particularly during the period when Newark Airport has been closed or only partly open.

Regarding my own personal balance sheet, I have spent a total for the past year of $2,580.66 on operating costs, maintenance, hangarage, insurance, improvements and equipment, which, deducted from the total receipts of $3,499, leaves a balance of $918.34 to be applied against interest, amortization, depreciation, etc.

It will be noted that I lost only ½ day of Company time due to weather while saving 55½ days. In retrospect, I think sometimes I flew when I had no business to do so—not that I think, or felt at any time, that I was taking chances with my neck, but there were times when conditions made flying something of a chore, rather than a pleasure. I think I have been prodding myself through a sense of urgency, probably due to the underlying conviction that I had to prove the value of this idea, to the Company as well as to myself. I think that over the past year this has built up a certain fatigue in me, and I hope to ease off a little in the coming year. When the weather threatens to make flying seem like work, I will get "weathered in" for a day or so.

My feeling is that I have proven to myself the feasibility of the small business plane and from here on I would like to treat the plane as a more routine part of my normal working day and, from time to time, as the wonderful recreational facility I have found it can be. END

My Son Manfred

(Continued from page 33)

critical mission.

About this time occurred an incident that endeared him to millions of ground troops. An anti-aircraft gunner inadvertently shot down one of Manfred's pilots and a storm of public and official indignation gathered around the poor soldier's head. Instead of joining the hue and cry against the Army gunner, Manfred studied the case, concluded the gunner had used the best judgment possible in the snap-judgment circumstances, commended him publicly for fidelity to duty, and asked that the gunner be transferred to the Richthofen command.

In the air war of that day, Manfred noted that fighter losses were increasing severely where his men let themselves be pulled down to low altitude in a fight or got themselves trapped far behind enemy lines. He set his face against such procedure and made great point of it.

Then, on April 21, 1918, he violated his own tactical concept. A stiff east wind drifting him across the lines, an eager tangling with several British fighters, and the German Ace of Aces was at 1,000 feet where ground fire could effectively reach him. Pulling his plane into an Immelman, Manfred was struck in the back by a machine gun bullet while the fighter was in an inverted position. The bullet pierced his heart. His plane went into a glide, then stalled and crashed from a low altitude. He was dead when men of the Australian division over which he was flying reached the wreckage. In later years I received a picture from Australia which showed his features undisfigured.

The news of Manfred's death swept like a wave of grief across Germany. Letters, telegrams and messages of all kinds by the hundreds of thousands reached me. At a single grave in enemy territory all Germany stood mourning. The British buried Manfred with full military honors and with their own pilots as his pallbearers. It was as he would have wished.

Long afterward when the guns were at last silent, Manfred came home. By the bridge at Kehl on the Rhine the French gave his body back to Germany.

The Germans placed Manfred's coffin on a railroad car for its journey home to the capital of the Reich. As the train wound through the Baden countryside by night the tracks were lined all the way by the lighted torches of the populace and bonfires burned in the hills. Among the masses of flowers in the "Church of Mercy" in Berlin was a great wreath to comfort a mother's heart. It was the outline of a red propeller lying across a field of white carnations and had been placed in the church by British and American airmen. The inscription on it read, "Manfred von Richthofen, our opponent but nevertheless our comrade." His Excellency, President of Germany, von Hindenburg, with his Chancellor and Cabinet attended the burial in Invaliden cemetery. The date was November 20, 1925.

And thus lived, and entered Valhalla, Germany's young Siegfried in the dawn of the air age. END

Another NORTHROP Graduate Chooses Jet Engine Career

Like many other graduates of Northrop Aeronautical Institute, Keith Englebert chose the fascinating field of jet engines for his career. He's moving ahead rapidly, thanks to his thorough, practical training at NAI. He has already won recognition for his part in setting up a new type of test stand for jet engine fuel systems. At this stage in his promising career, Keith supervises intricate jet fuel-system testing for his company.

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OPERATORS' CORNER

National Aviation Trades Association (NATA) is a service group that represents all service segments of the airport, fixed-base and air service operator. Its staff represents a federation of State Chapters and Members-At-Large. Its purpose is to fountainhead all activities of the American Operator, and to act as a sounding board for better public relations. Its aim: to improve air service operations and promote greater aircraft utilization.

Headquarters are located at 1346 Conn. Ave., N. W., Washington, D. C. Members receive a monthly "Washington News Letter" of confidential legislative and policy news in the making.

National Air Taxi Conference, same address, an affiliate of NATA, represents operators engaged in perfecting and standardizing a system of "through" air transportation.

Opinions expressed in this column are not necessarily those of FLYING Magazine.

Still A Fighting Pilot

On a hangar facade at Lafayette, La., in the heart of the Evangeline country, is a big sign which reads, "PAUL FOURNET AIR SERVICE" and in the middle of the sign is painted a guy in a wheel chair.

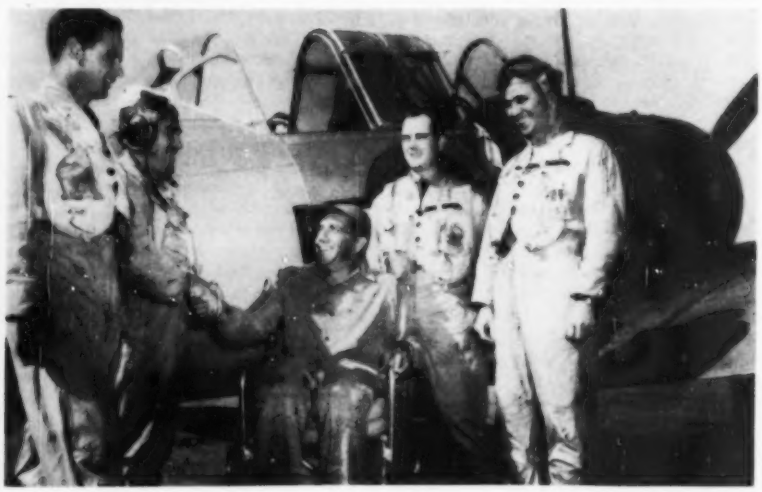
This is Paul Fournet's trade mark . . . the gesture of a gallant soul who disdains to wrap himself in the cloak of a handi-

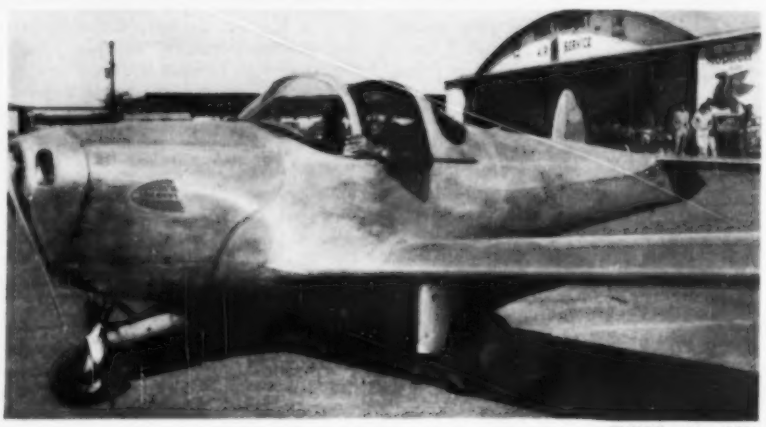
cap . . . even the handicap of a busted back.

Veteran fighter pilot of the Pacific and later victim of a power failure on take-off, Paul sweated out many months of sheer will to live, and at the end of it with a pair of paralyzed legs set himself up in business . . . flying business.

His neighbors write FLYING magazine that if a business is judged by the people in it, aviation must be a big business.

Wheel chair . . . automobile . . . airplane—Fournet pulls himself from one to the other, and carries on the Fournet Social Security program he has devised for himself . . . self-reliance, courage, happiness.





At top, Paul Fournet at the wheel of his specially equipped car. *Center*, old friends from the New Orleans Naval Air Station pay Paul a visit. L. to R., Lt. W. F. Felghman, Lt. Cmdr. Don Harper, Paul, Lts. Harold Rich and J. D. Ward. *Bottom*, Paul at the controls of his Ercoupe.

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1. United Air Lines passengers have this view of one of the west's most beautiful resort areas.

Where am I?

One of the rewards of flying is an intimate knowledge of the face of our country. In subsequent issues of FLYING we will carry aerial views of landscapes with distinguishing markings. It's up to you to figure out the location. If you remember them all you will eventually have a pretty good idea of America.

SEE PAGE 64 FOR ANSWERS

2. Canada's foremost boom town, served by Northwest Airlines. In the foreground is the famed MacDonald Hotel.

3. Site of one of the greatest flood disasters of all time, this industrial city is an All American Airways stop.

4. Temple and Statehouse are principal buildings in this large western city.

5. Home base for Northwest Airlines, these two cities are divided by the mighty Mississippi.

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Power Soaring

(Continued from page 19)

engine run-up. Nor was it easy to line up and ease in full throttle with a wrecked plane of more horsepower than ours in view, and remember the words of the CAA weather observer regarding the wreck of another Culver *Cadet* which "never even left the ground before plowing through the fence at the end of the field." With the old reassurance of "It can't happen to us," we poured on the coal.

At the three-quarters mark of the runway we became airborne, saving the agony of trying to stop in too short a space, and gently eased over the railroad tracks, highway, and usual accompaniment of telephone wires. Incidentally, even though airborne and above the wires, we still looked UP at the city and highway, directly on course. As could be expected, the airspeed indicator ignored our efforts to gain speed as we hedge-hopped for a mile or so, and we figured we *might* make it back to the runway for a landing.

Perhaps the heat from our perspiration caused it, or perhaps our luck wasn't all poor, but it was here that our first thermal presented us with its calling card—a boost, which we felt in the seat of our pants prior to the recording of it by our instruments. I began an immediate circle, cautious of airspeed, and was rewarded with a rate of climb of 300 feet per minute.

Attempting to execute a tight turn to stay within the limits of an updraft, while hovering just above a stall close to the ground, can be your execution—rather than that of the turn. Nevertheless, you can veer around the turn, ready to straighten out at any instant, and do a fairly good circle when forced to. Even then, you can't always stay within the updraft throughout the entire 360 degrees, for most updrafts are in the form of a revolving funnel, with the apex at the ground. Only after you've reached a thousand feet or so above the apex is the updraft large enough to contain the average plane. Most pilots do not turn tightly enough to stay within an updraft, but a limit must be placed upon the degree of bank below 1,000 feet.

We drifted with our thermal toward the looming city of Rawlins, but our worries were over. At five hundred feet our rate of climb increased to 500 feet per minute and I began easing back on the throttle for the first time since take-off. In a matter of minutes we left our express elevator, picked up our speed for cruise, and sailed over the city some 3,000 feet below. Forty minutes later we entered the extremely rough terrain leading to Ogden. Each time a mountain would loom up, we simply snagged a thermal and watched the altimeter grab at the numerals, trying to catch up with our rate of climb.

Margie Impressed

My wife, Margie, also owns a private ticket for powered aircraft, and since I met her as her gliding instructor, she was used to this sort of thing. However, even she was astonished by the simple manner in which a power plane can become a highly efficient sailplane merely by circling within updrafts with idling engine. In one area we soared at 120 mph for 10 minutes, using only thermals for power. It's easy, fun, safe and economical.

Upon reaching the mouth of the pass into Ogden, we had two problems of real concern. An estimated headwind of 40 mph had so depleted our gasoline supply that our gauge had given us up for lost, and Ogden was the only airport within our range. However, to reach Ogden was not so simple as it appeared, though we could look through the pass and see the paved runways of the Municipal. There is a mountain range of some 11,000 feet bordering Salt Lake Valley, and with lightplanes such as ours passage is limited to the passes. Ordinarily this is not at all difficult. Also, a 40 mph wind blowing through a pass offers no unusual hazard. But, when the wind aims at the pass from a 65° angle—as was the case with us—look out!

That pass into Ogden was so turbulent that you could have tossed a computer into it and watched the pieces come flying back out. To even fly near the lee side of the pass was to appoint your own executioner. For once, we looked longingly at the automobiles blithely driving through below, and I began hoping we might get off easy enough to present material for the "I Learned About Flying From That" articles.

★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★

U.S. ENTRY

The United States will be represented in the speed class of next fall's London-New Zealand air race by the *Spitfire* Mark 24, N7929A, owned by the American Aircraft Corp., Teterboro, N. J. Peter D. Freytag, president of the company, will pilot the plane.

★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★

Lucky Updraft

Fortunately, my glider experience had taught me some simple, invaluable rules concerning wind against ridge, and I immediately headed toward the opposite ridge from our side of the pass, or the windward side. Since we did not dare enter that pass until sure of help, we circled as near as we dared to the windward side. On our first pass at the slope we knew our worries were over—we were climbing at the rate of 2,500 feet per minute! I applied carburetor heat and closed the throttle for a constant 2,000 feet per minute, trouble-eliminating, ridge current ride.

After exactly two and one-half minutes of ear-popping climb, we calmly sailed through the 3,000 feet per minute downdraft sucking into that pass, and proceeded to "glide" for 15 minutes to descend to the Ogden field elevation.

While still 1,000 feet above the field, Margie took over while I applied my attention to lowering our wheels. I raised the "drop" lever, and it came off in my hand. After having conquered the pass, here we were over the airport with the gear handle rolling in my hand! However, I noticed that the handle merely had unscrewed under vibration, so I proceeded to fix it while Margie looked on with a pale expression.

When we described our flight to the tower operators I know they felt we were full of hot air, for they said, "Oh really?" with unbelieving smiles.

We stayed at Ogden until the wind subsided, and spent the afternoon and night in town while Stan Atkinson, the flight service operator, replaced a bad valve in our second-hand engine.

Early next morning we proceeded on course and found the trip uneventful, except that we had poor soaring conditions over Donner Pass which leads into Sacramento from Reno. We did climb to 10,000 feet with the throttle set at cruise, and a cool engine rewarded us for our patience with what conditions there were.

At Sacramento our poor, tired, second-hand engine gave up. We were forced to find a replacement and were fortunate enough to get Eddy Allen of the Sacramento Sky Ranch to do the job.

Our return trip proceeded with much more "regularity," although we soared and saved most of the way. After figuring all the gas and oil receipts, and adding repair bills and another engine, we still flew within the cost of airline fare.

Power soaring is fun, economical, safe, and possible with any light plane. You ought to try it. END

I learned about flying from that

(Continued from page 37)

sandbar had disappeared. As things stood, however, the airplane was technically on Mexican soil, illegally, and subject to confiscation by the Mexican government. The sooner the airplane could be removed the better it would be for everyone concerned.

Upon examination, we decided that the airplane could be repaired enough to fly. The damage consisted of propeller broken; nose cowling smashed in; two left wing struts badly bent (left wing tip almost touched the ground); left door smashed; both skylight windows broken out; about 50 small holes of various sizes in the wings; engine assembly and cabin filled with water, mud and pebbles. I flew the *Cub* back to the airport, tied a new set of Cessna struts on the *Cub* struts, loaded in a new propeller, dope, fabric, oil and more tools and went back to the sandbar.

Later that morning I made one more trip to the airport for some carbon tet to dry out the mags and some sandwiches. One of the other instructors, John Hastings, returned with me to fly the *Cub* back as Chuck was not a qualified pilot. Chuck and I worked until about 4 that afternoon on the Cessna. We installed the prop, straightened the nose cowling, removed the smashed door (it was not repairable) patched the wings, changed the struts, washed the engine and cabin as best we could, put in fresh oil, etc.

The engine started easily and ran up

well. I told Chuck I would return for him in the *Cub* and he wished me luck. Both of us felt that the airplane was airworthy and that no trouble would be encountered in flying it back to the field.

Sandstorm

I backed right up to the edge of the water and started my take-off run to the north. The sand was very firm and I picked up speed rapidly. Then my troubles started. Although we had cleaned most of the mud from the inside of the cabin, quite a bit remained in the cracks and on the floor and with the left door removed and the skylights gone a small sandstorm was created as soon as I got a little speed. It choked and partially blinded me, but there was no stopping now. After running about 450 feet it was apparent that I had plenty of speed and I lifted it off. It rose two or three feet and immediately settled back on the sand. I let it run the full length of the sandbar and again lifted it off right at the water's edge. This time it remained airborne but required back pressure and an abnormally nose-high position.

Luckily the river at this point is straight, as it took me at least a mile to get 10 feet of altitude and about two miles to get 50 feet of altitude which would enable me to turn and fly back to the field, clear of the brush and trees on the river bank. Flying that close to the water, with my eyes, nose, and mouth full of dried mud, was not exactly fun. I was terrified and not ashamed to admit it. All the way back to the field it was necessary to hold full power and a nose-high attitude in order to remain airborne. I don't believe my airspeed ever exceeded 50-55 mph. The tail was buffeting considerably, but I figured this was caused by the skylights being out. I had encountered this before when I lost a skylight in another lightplane doing spins with an outside air temperature of 10 degrees below zero.

The engine overheated, but continued to develop power and I attributed this overheating to the low airspeed, mud between the cylinder fins, and a small amount of water still in the oil. Had the terrain permitted I would have made an emergency landing, but I felt that as long as I could keep flying it was safer to continue to the airport than risk a landing.

I finally reached the field and made a power approach and wheel landing. It was a wonderful feeling to be back home, with myself and the airplane intact (more or less). I flew back to the sandbar in the *Cub*, picked up Chuck and we called it a day.

The following day we removed all of the fabric from the wings of the damaged Cessna and it was then apparent why the lifting and flying characteristics were not normal. Every one of the wing ribs was flattened slightly at the highest point. This change in the airfoil profile, together with the lack of skylight and one door, destroyed a big share of the lift and almost resulted in disaster for me.

I learned that, no matter what the circumstance, a damaged aircraft should never be flown before a very complete examination and all necessary repairs have been made. END

Aero Commander

(Continued from page 29)

cell tanks which are interconnected and mounted in the wing, two between each nacelle and the fuselage, which feed into a center accumulator tank mounted in the wing's center section, and from which fuel is fed to both engines. Under this simplified system fuel valves are turned on at the beginning of the flight and turned off when the flight is completed, completely eliminating the use of selector valves, the necessity of cross-feed systems and the switching of tanks during flight. The use of this simplified fuel system produces a constant balance of fuel level and loads which eliminates the need for aileron trim tabs.

The *Commander* is powered by two geared GO-435-C2-B Lycoming engines of 260 hp each which give it a cruising speed of 197 mph at 10,000 feet. Standard fuel capacity of 150 gallons provides a range of 1,150 miles with a 30-minute reserve.

The business world needed a light transport which would provide fast, safe, economical transportation. The Aero *Commander* has provided 200 mph speed, proven safety that eliminates the fear of flight over water or rough terrain, a minimum of cost in relation to high performance, range on one hop to span nearly half the continent, and at the same time a plane which can fly in and out of small fields. With its low stalling speed the *Commander* can take off or land in a space well under 1,000 feet.

With all its utility features, the *Commander* also provides luxurious comfort and cabin spaciousness.

The Aero *Commander* raises the curtain on a specialized new product—the businessman's airplane. END

SPECIFICATIONS

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All performance based on full gross load of 5500 pounds.
Speeds guaranteed within 3% plus or minus.
Climb data guaranteed within 10% plus or minus.

Gross Weight	5,500 pounds
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Fuel Capacity (standard)	150 gallons
High Speed—Rated Power S.L.	211 M.P.H.
Cruising Speed—70% S.L. Power @ 10,000 ft.	197 M.P.H.
Rate of Climb—2 engines Normal Rated Power S.L.	1700 F.P.M.
Rate of Climb—1 engine Normal Rated Power S.L.	400 F.P.M.
Service Ceiling—2 engines	24,000 Feet
Service Ceiling—1 engine (windmilling prop.)	8,700 Feet
Service Ceiling—1 engine (feathering prop.)	10,500 Feet
Takeoff Distance over 50 ft. Obstacle ("0" wind)	950 Feet
Stall Speed @ S.L.—Full Flaps-Power Off	60 M.P.H.
Stall Speed @ S.L.—Flaps and Gear Retracted	67 M.P.H.
Stall Speed @ S.L.—Full Flaps-Power On	40 M.P.H.
Power Plant (2) Geared Lycoming GO-435-C2-B	
Takeoff Rating (5-minute rating)	260 H.P.
Normal Rated Power	240 H.P.
Engine RPM (At Normal Rated Power)	3,000 RPM
Propeller RPM (At Normal Rated Power)	1,925 RPM
Range (with standard fuel capacity at 60% power and 30-minute reserve)	1,150 Mi.

The above performance is based upon International Standard Atmosphere, and upon the engine powers specified in the engine manufacturers power curves. Single Engine performance is based upon the use of full feathering propellers.

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Radar Aces

(Continued from page 13)

nooga, Tenn., a radar controller following the flight on his scope at a Tactical Air Direction Center. Within seconds, he had the rescue machinery in high gear and two flights of *Sabrejets* were scrambling from an advance air base to cover the limping F-86 and the coming rescue.

Then, while watching the progress of Lieutenant Shumate's crippled plane, Lt. Thornburg instructed the pilot by radio of the most favorable bailout location within reach and how to get there. The bailout was accomplished over water, the patrol cover was vectored by radar to the exact location, and in a matter of minutes Lt. Shumate was fished out of the Yellow Sea, unharmed.

Meanwhile, during the rescue, Lt. Thornburg had seen three suspicious tracks on his radar scope. When his radio told him the rescue was completed, he called the covering *Sabrejets* and vectored them on an intercept course with the unidentified planes. In the blazing battle that followed, three MIG-15's were destroyed.

First Radar Ace

Men of the 502nd Group are trail-brazers in their specialized field. Capt. James I. Wheeler, of Dayton, Ohio, for example, is the first and unofficial "radar ace" of the Korean conflict. His title came as the result of air action on the afternoon of last August 6, when he directed by radar and radio the interception of a large flight of Communist MIG's. Six of the enemy planes were destroyed, one more than enough to make him an "ace."

"It looked like a quiet afternoon," Capt. Wheeler said. "But shortly after 1 o'clock you-know-what broke loose. First I picked up an unidentified track on my scope. He was headed south and coming fast. I scrambled a flight of *Sabres* to cut him down, but in no time three more 'bandit' tracks appeared on the scope, so I scrambled another flight."

On the scope, radar-trained Capt. Wheeler, a fighter pilot himself, watched the MIG's and *Sabrejets* closing for the action. Knowing only too well that jet pilots are handicapped by speed, haze and clouds in spotting their aerial quarry, he was fully aware of the service he could render, even though far from the scene.

Radioing the necessary headings, he kept the *Sabres* on a direct line of interception until, at the right instant, he turned them loose. Result—the largest mass destruction claim of enemy aircraft, directly attributable to radar control, yet scored in the Korean air war.

Brain center of the widespread and intricate electronic system of the 502nd is the Tactical Control Center located at Fifth Air Force headquarters and handy for the frequent visits of Fifth Air Force Commander, Lt. Gen. Glenn O. Barcus.

Every flight, friendly or enemy, is pinpointed by one of the strategically located 502nd radar outposts, and reported in a matter of seconds. In the control center the movement of each plane is plotted on a giant horizontally-laid board, on which is superimposed a grid map of Korea. The geographical position of each plane is indicated on the board which thus depicts the battle scene as it unfolds, perhaps hundreds of miles away.

From a raised balcony, Gen. Barcus can watch the progress of a battle or air strike and make tactical decisions while his aircraft are in the target area. The combination of radar and radio gives him a detailed control that extends to actual voice contact with flight leaders and even with individual pilots in "MIG Alley."

A classic example of such direct communication between the high command and operational aircraft occurred recently during a heavy fighter-bomber strike on Pyongyang military targets. In direct voice communication with the strike commander high over the Red capital city, Gen. Barcus made last-second decisions that brought about much additional devastation of the massive target area.

A highly important phase of 502nd operation falls under the Group's Tactical Air Direction posts, which provide a navigational aid network for operational control of aircraft flying at night. Battle-damaged planes may call upon the ADPs for heading to home base or, in an emergency, to the nearest friendly airfield.

Commanding the 502nd TCG is Col. Ernest J. White, Jr., of Chester, N. Y., former commander of Selfridge Air Force Base in Michigan. On him falls the responsibility of directing the largest combat electronics communications organization in the world today.

With a commander's keen insight into the value of teamwork, Col. White places strong emphasis for the success of his complex unit on the radar outposts. "They are the men who do the actual radar scanning," he says, "men on whom rests the greatest responsibility of all. They are the first line of radar defense."

"Scope-heads"

The men to whom Col. White refers are highly trained radar operators, affectionately called "scope-heads" by pilots and air crews who use their facilities.

A brief glance at their scopes, from which they alone can determine an amazing amount of valuable information, would confuse the untrained watcher. On the ringed dial appear the radar-returned images of stationary objects, such as mountains, showing up as constant "blips."

These are termed "clutter" by the scanners, who pay the disturbing images little heed. Instinctively, they pick from the welter the single greenish-colored dot that may be friend or foe. Like the old-time telegrapher who expertly sent his message while remaining insensitive to the words, the radar scanners react instantly to an interpretation of the whole.

An instance last winter, while providing a laugh at the expense of 502nd technicians, nevertheless proved vividly the effectiveness of the "scope-heads."

Controllers picked up an unidentified track heading straight for Seoul. Air raid sirens sounded and ack-ack batteries were manned. The entire area was alerted and blacked out. But when searchlights flooded the sky, all they revealed was a flock of Manchurian geese heading south to warmer climes.

Said the 502nd as they laughed last: "Even a goose can't get through." END

How to Sell

(Continued from page 17)

what happened when I purchased my ship. I took the train to a small town in the southern part of the country, to talk to the owner of a twin-engine plane. I had heard that this plane was up for sale and had confirmed my interest by correspondence with the owner.

Within 10 minutes after I met the young man, I was sure that I knew more about his ship than he himself did. He actually had no notion of what exact cruising or top speeds the ship attained, nor did he know of the gross weight or payload that the rugged aircraft would haul.

He had never bothered to check gas consumption, and didn't even know how much gas the plane would hold, although he claimed to have flown it for nearly two years.

The young man was asking $1,800 for his ship, and I honestly believe that the actual value of the plane was within $100, either way, of being just that; but he seemed to have no interest in the plane itself apart from the money that it would bring.

Cash Bargain

That evening, after a little careful talking on my part, he took my check for $900 for full payment, and I sent the sleek ship skimming down the sod runway, into the wild blue. I was homeward bound, minus the sum total of $933 and materially richer by one remarkably fine aircraft.

Thirteen dollars for train fare to his home field, and 20 dollars worth of gas in the tanks accounted for the slight differential.

The seller had actually made the mistake of saying that this was just the ship with which to take my wife on week end jaunts to the mountains!

Shucks, I could do *that* in a 65 hp job, go a little slower, still not have to stop for fuel, get there an hour later, on exactly 20 gallons less fuel than his twin-engine plane would have required to cover the same route.

This owner would have come closer to selling me someone else's plane if week end jaunts had been my only excuse for owning a plane.

Let's look further.

The owner made the mistake of not stressing the security and safety of twin-engine operation, the greater speed of the ship, its luxurious, roomy cabin, the three radios that the craft mounted, and its great range.

His mistake cost him exactly $900—a fair sum, even to as carefree a young man as he appeared to be.

When you go to sell your ship, stress the things that are most to your own advantage. Remember that the prospective buyer is interested only in what he can save himself, even though it might be at your expense. Sell him *your* ship, not someone else's.

When presenting your ship to a prospective buyer, be sure to mention the following in the course of the interview:

1—*Engine:* Most important, perhaps, of all. Tell how it has been run and treated. State the total time on the engine, as well as time since overhaul. Be sure to report recent overhauls, conversions or checks, and tell who has done the engine maintenance work on your plane. Have the answers to the prospective purchaser's questions ready.

2—*Frame:* Mention time and recent checks or overhauls as these are the greatest of all the silent sales-points of your ship. If the frame has been well cared for, this will mean additional money in your pocket.

3—*Fabric:* The better the condition of the fabric the more right you have to expect your asking price for the ship.

4—*Controls and Instruments:* Stress anything unusually good about the controls or instruments of your ship. It is a mistake to overlook the safety and luxury appointments of your plane, as they add decidedly to the value. Also impress the prospective buyer with the ease of operation, safety and special control features, such as good slow flight characteristics, good stall control. In a twin-engine ship be sure to stress the ease and safety of single-engine operation. Stress most the advantages of your particular ship over others, not only ships of different makes, but also of its own type or make.

5—*Details:* Mention whether or not your plane has been cracked-up and, if so, the extent of the damage. Also tell whether it has been flown by students, rented or leased out, used as an executive or company plane, flown by a professional pilot, etc. By all means state whether or not the ship has been hangared. It is also wise to have the log books for your plane to back up your statements.

Let us now consider a few of the technicalities involved in the sale of your plane.

Your contact with the prospective buyer can be the result of a classified advertisement in an aviation publication. An advertisement of this type has many advantages. It reaches only those interested in aviation, among whom there are bound to be many prospective buyers of used aircraft.

Remember that nearly everyone's first plane is a second-hand job.

Have the title to the plane with you when you and a prospective buyer talk over the financial arrangements. Close the deal quickly, so that the customer may be on his way with the plane, but don't appear in too much of a hurry to sell the ship. If anything, appear slightly cautious about it.

Hurrying too much may only postpone, or possibly lose, the sale, so watch your step here.

If this article has served its intended purpose, it will not necessarily make a shrewd trader out of you, but will rather put you on even terms with the buyer and thus enable you to sell your plane properly with the least possible expense and delay. END

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The seventh annual All-Woman Transcontinental Air Race, sponsored by the Ninety-Nines, Inc., will start July 3 at Lawrence, Mass., and end at Long Beach, Calif., July 7.

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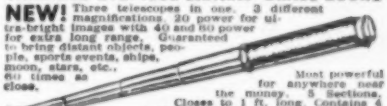

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How to Buy

(Continued from page 16)

bargain. After buying it, however, he discovered that the title was not clear and could not be cleared by normal procedures. The plane had been owned by a group of five people—one of whom had abandoned his interest in the plane. Another had sold his interest to the remaining three partners. These three, acting in good faith, had signed the ship over to the airport operator for the rent due on it but no new registration papers had been obtained. As a result, the ship was still listed in Washington as being owned by five people.

When my friend tried to get it registered in his own name, he found that the man who had sold his share demanded to be paid off again before he would sign an official paper releasing his interest. The man who had abandoned his share had moved to California. His mother was still in town, but refused to reveal his address. My friend hired a lawyer and went to work on the case. After a year he had a clear title to the plane but his original investment had doubled. Meanwhile the fabric on the ship had so deteriorated from a year in storage that a re-cover was necessary. In the end, it took almost $1,000 to get that "cheap" airplane flying.

Loose Ends

Another man who got into trouble did so because of a combination of poor maintenance and poor paper work. In the summer of 1950, this man, an automobile dealer from northern Pennsylvania, brought his plane into my shop. He had just bought it from a friend and the ship was a beauty with a super-duper electrical system, a radio, a loop antenna and lots of pretty paint. Unfortunately, the landing gear had been wrenched in a taxi accident and the main fuselage bulkhead had been buckled. Also, the license had expired and the ship was flown to me on a ferry permit.

Upon digging into this ship, it developed that the bulkhead had been damaged in 1948 and the ship had been flown since then illegally and with no license. The CAA was alerted for it in two states. In addition, every bit of its fine equipment was installed illegally, without paper work and not to the manufacturer's specs. As a result, I had to remove the entire electrical system and replace it with a new system. The radio had to be relocated and the loop removed, since to approve that particular installation would have required flight tests.

A huge battery had been installed without a drain and had overflowed, causing damage inside the fuselage which necessitated cleaning and painting the inside of the fuselage. By the time the whole mess was cleaned up, I was forced to hand the man a bill of over $750.

The list is endless but the moral is clear. Find out the cost of the next annual before you buy and find it out from someone in your pay, not from the seller. Right now, I know of a plane waiting for someone who is going to have to replace a windshield at a cost of $70, plus labor, at the next annual. Also waiting for an unwary buyer is a perfectly wonderful "bargain" that is going to cost someone over $800 worth of engine work before its Mandatory Notes are up to date or, for that matter, before it is really safe to fly. Any takers! END

Navy's Trial Enlistments

(Continued from page 35)

the last program. Close to 200 young men reported for duty there. They were organized as an "X" Division and moved into station barracks to begin their training as airmen recruits. Officers and men from the Aviation Technical Training Department of the station served as instructors.

While their actual duty hitch was shorter, the men followed a typical Navy training schedule. All hands turned to at 0530. On the drill fields, they did their calisthenics, then returned to quarters for the usual succession of morning formations and inspection. By 0830 classes began and here the recruits moved into the specialized phases of air training. Effective use was made of the latest training devices and audio-visual aids.

In the course of the 90-day cycle, 140 hours were devoted to the airman phase. Forty-five hours, for example, were given to subjects under general aircraft familiarization. Students here were introduced to the principles of flight, the design, structure and handling of military aircraft. Intensive work in safety precautions and training in aircraft recognition were included. This section concluded with a 30-hour pre-flight inspection.

Fifty-five hours were devoted to survival and emergency equipment. The men were drilled in survival techniques, learned to hand'e a variety of survival and emergency equipment, then turned attention to aircraft fire fighting.

At the end of this section, the boots moved into a program of basic skills. Here each had an opportunity to take survey training in specific skills. After 17 hours in this area, each was equipped to decide the rating for which he'd like to strike.

Covered was a study on use of hand tools, layout, interphones, structural repair of aircraft, radar, aircraft gunnery, engines, and propeller familiarization. Twelve hours of study on aviation rate familiarization followed to complete the course.

Theories in Practice

Since Glenview NAS is one of the most active reserve bases in the nation, the recruits also got a first-hand look at how actual flight instruction is put to practice.

Their book work on "Principles of Flight" came alive in the flashing dive of *Banshee* jets. The complex workings of radio and electronics took on new meaning in the station's GCA and ILS towers. In the radar lofts of the classroom building the men worked on operating APS-4 sets and studied the fundamentals and theory of radar operation by actually using this airborne search gear. Expert

THE FORMIDABLE QUINTUPLETS

By Harry L. Kowal

Back in 1940, TWA made transport history by introducing the first four-engine pressurized airliner on U.S. transcontinental routes — the 307B *Stratoliner*. When placed in service, the five *Stratoliners* were the luxury, high-speed craft of the day. They made the continental crossing in an elapsed time of 14 hours, 40 minutes.

In February, 1942, the *Stratoliners* joined the Army as part of TWA's wartime contract operation for the Air Transport Command. Dubbed C-75, and in full war paint, the planes had their range boosted by the addition of fuselage fuel tanks. They were used to initiate a service across the South Atlantic to Cairo, and later across the North Atlantic to Britain.

Late in '44 the *Stratoliners* were retired from the Army and reconditioned from nose to tail by Boeing. Wings, engine mountings, landing gear and tail units were replaced by those of the B-17G *Fortress*. Wright Cyclone GR-1820-G205a's were installed. The conversion cost $385,000 per plane. The rejuvenated veterans were then returned to TWA, with seating capacity boosted from 33 to 38. The name *Stratoliner* had become a misnomer, since the cabin supercharging equipment had been removed. The rebuilt planes were redesignated SA-307B-1 and were returned to scheduled service in the spring of 1945.

Soon expansion of TWA's fleet and acquisition of Martin 2-0-2's rendered the venerable *Stratoliners* surplus. By this time the five planes had aggregated a total of 24,212,000 miles flown and had carried 87,500 passengers in commercial service.

After a decade of continuous operation, it was to be expected that the historic old-stagers would be scrapped. Far from it! There was still plenty of life in the bewhiskered quintuplets, and they were acquired by the French charter company, Aigle Azur.

The *Stratoliners* were again seen in Europe, bearing their new Aigle Azur insignia as proudly as they had carried those of TWA and the ATC.

Thirteen years of almost continuous service now lie behind them, and probably many years of operation ahead. As one of the Aigle Azur pilots said: "Les Quintuplets Americains — C'est Formidable!"

instructors gave the men an introduction to radar scope interpretation on the APS-3 and then showed some of the Fleet's most elaborate gear in use at the CIC school.

Probably the high point of the entire training cycle came when the first familiarization flights were scheduled. Then the station's big PBY's were rolled out on the line. The boots climbed aboard and took their stations beside the regular flight crew. The radarman slid down beside the screen, gunners squatted in turrets.

As the huge ships became airborne, the men followed through the flight routine under the watchful eyes of the rated crews. For the enthusiastic young recruits, these first flights were an exciting introduction to what, for many, will be a career in Naval aviation. At the end of the 1952 training program, Commander A. B. Meriweather, Aviation Technical Training Officer, Staff of Chief of Naval Air Reserve Training, reported that the goals set for the special accelerated courses were well on their way to being met. Just how accelerated training has done this job is shown in report figures released by him.

First, the old minimum of 31 months needed to reach a third class rate has been sliced to 16 months.

In August, 1951, the Naval Air Reserve had only 2,838 Airmen. One year later, the figure was up to 5,292. In tne same period, the number of Airmen Recruits fell from 7,905 to only 3,000, indicating the rapid number of advances.

Finally, despite the tremendous number of men called to active duty during these 12 critical months, third class P/O's rose from 1,783 to 1,852 indicating that the reserve program was satisfactorily backing up the nation's fleet air arm.

Innovation in '53

In 1953 a third phase of the Accelerated Training Program will be offered aspiring technicians. It is the Basic Rate Training Program which offers men training for qualification in one of the five basic aviation ratings as third class petty officers. A young man can take concentrated instruction as an Aviation Machinists Mate, Aviation Technician, Aviation Ordnanceman, Aviation Electrician and Aviation Metalsmith.

The training offered is similar to the courses conducted for regular Navy personnel in the famous Class "A" schools at the Naval Air Technical Training Center at Memphis, Tenn. Airmen at the various stations receive both classroom instruction and invaluable on-the-job experience. END

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Philly to Palm Springs

(Continued from page 18)

and cooperation of the Aircraft Owners & Pilots Association. AOPA's Max Karant visited with the group and pointed out the problems and pitfalls, the headaches and the hard work ahead of them. When he was certain that the boys knew what lay in store for them, he gaves AOPA's blessing and joined in cooperation for the coming event.

If this year's participants come home with the memories of a wonderful flying vacation such as I had in the event that started this program, they'll be looking forward to this as an annual event. This is how it happened on July 8, two years ago.

On that Sunday morning, Art Jarrett, Jack Heywood and I, in a Piper *Pacer* 125, left to enter the race. At Teterboro, N. J., we met our competitors, from all parts of the country and flying various makes of planes. I was the only entrant carrying two passengers so I decided that the chances of winning were practically nil; but in congenial company, I knew we'd have fun.

At 1:30 p.m., we left Teterboro for Pittsburgh. There we refueled and refreshed, then left for Indianapolis. In Indianapolis we met some of the other contestants, so dinner was one huge gab-fest. About this time I was glad I wasn't flying solo because we had managed to stay right on course (why not, with three navigators?)

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and my *Pacer* was ahead of time. Henry Parking of Columbus, Miss., who was flying his 170 Cessna, solo, admitted that with a navigator he'd have saved himself time because there is so much to do when you try to take care of every detail yourself.

VFR Stipulated

Monday morning, to our disgust, it was raining and the stipulation was that all flying had to be VFR. So we were compelled to wait until noon. By noon it had stopped raining and we left for St. Louis. Upon taking off we discovered that the winds aloft were all headwinds so we flew right on the deck making navigation a major problem. Again, I was glad to have my pals along.

Two hours and 15 minutes later we descended upon St. Louis. We found that nearly all of the other planes had left there but a *Bonanza* which we hadn't seen since we left Teterboro had just been in before us so that encouraged us. Hurriedly we lunched and filed a flight plan to Tulsa. We made Tulsa in three hours, 12 minutes. Again, we refueled quickly for we wanted to hit Wichita Falls, Texas, before dark.

At Wichita Falls we met Dr. George Stevenson, who was flying a *Swift* 125. Doc was having trouble finding accommodations for the night, but we managed to get a room for the four of us. It was hotter than Hades; we had taken showers and learned that once the water was turned on it couldn't be shut off. All night long we had Wichita Falls in our room. We were at the field waiting for sunrise. There we left Dr. Stevenson, then met him again at Wink, Texas.

It was only 9 a.m. when we arrived in Wink and the headwinds were strong as mischief so we debated whether to fly or sightsee that day. Wink is only about 75 miles from the Carlsbad Caverns and we decided to tour the caves instead of flying. We were judged only on actual flying time as long as we landed at designated fields. The CAA Range attendants at Wink and Carlsbad arranged our visit to the caverns for us and extended us courtesy beyond the call of duty which we surely appreciated.

The caverns are a marvelous spectacle, and wonderfully cool. The temperature outside was 110 degrees that day but inside it is 51 degrees year-round. Before we finished our tour we had walked approximately eight miles, had blisters on our feet and were glad to get back to Wink. In this small oil town we had wonderful steak dinners and hit the sack early.

Visit to Mexico

By 4:30 next morning we were awake and waiting for the sunrise. Our flying from here on was to be over mountainous terrain. We filed a flight plan to El Paso and enjoyed scenery that was superb. El Paso nestles snugly in the foothills of the Franklin Mountains and the Rio Grande River skirts it, separating the U. S. and Mexico. Again, we left our *Pacer* for a few hours and went over to Juarez, Mexico, just for the feeling of having been out of the continental U.S.A.

In Juarez we purchased the usual leather and silver items and rode the street car around the town. By noon we were back at the airport in El Paso (which is certainly a beauty) and ate an excellent luncheon at the airport grill. We left El Paso for Tucson shortly after one o'clock, but encountered thunder storms en route and I had to amend my flight plan. I detoured around one mountain only to meet another storm a few minutes later, so at that point we were forced to land at an undesignated field which broke my heart.

The storm was a violent one but over quickly and we then went on to Tucson. Huge cumulo nimbus clouds, over mountain peaks 10,000 and 12,000 ft. high, were spurting forth bolts of lightning, straight to the ground. We were flying at approximately 11,000 ft. but up and down drafts were playing elevator with us.

That evening we stayed at a fine motor court with a swimming pool. We swam, ate and rented a car to explore the city. To my great joy we picked up a honey of a tailwind when we left Tucson. From Phoenix to Blythe, Calif., the next official stop, there was little but desert and here again navigation was rough.

Helpful Tailwind

The tailwind did wonders for us from here on through. We flew above 9,000 ft. and our gas supply held out so well that we could go all the way into L.A. without refueling. I contacted Blythe from the air and filed a new flight plan without landing.

While we were endeavoring to do this and calling VHF to Blythe we received no answer. Next I tried low frequency and did reach them. After I advised Blythe Radio that the VHF radio did not function and that possibly my radio was out, they checked and thanked us for making them aware that their transmitting equipment was not functioning.

Los Angeles was reached before dark. We arrived at Whiteman Airport at 18:50, having completed the course in 25 hours and 5 minutes.

On Saturday, Mr. Whiteman, owner of the airport, and Mr. Tinim, manager, arranged a party for all of the contestants. It was a swimming party and Bar B.Q., and in the afternoon the winners were announced and trophies presented.

I received two trophies, one the Transcontinental Handicap Air Race Trophy, the other from the Florida Air Pilots Association, each a beauty. For us the celebrations continued on into the wee hours and we were, I think, probably the happiest three fellows in the world. If you are in the vicinity of Philadelphia, stop into Turner Field and let me show you my trophies. I'm proud of them and hope that the Jaycees are starting what will turn out to be an annual transcontinental handicap race so that all of you can take part. Judging from the advance plans for this year's race, it could easily turn into an event that will attract thousands of fliers every year.

Further details of the 1953 race may be obtained from the Philadelphia Jr. Chamber of Commerce, Architect's Building, Philadelphia 3, Pa. END

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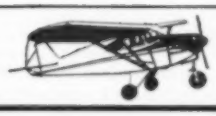

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MAIL BOX

(Continued from page 6)

fetched figures crept into the story lies in the editor's desire (ill advised, as it happened) to make the figures "more understandable." Reader Todd is, of course, correct.—ED.

MORE ON KITS

There are a lot of us who would like to see some revival of the ultralight, slow speed sport flying. I would like to see someone come on the market with a plane in this class with quick folding wings which would allow the owner to tow the plane to his own garage and thus avoid high hangar rents, one big handicap to such flying. During the last year I have noticed a revival of interest and a building of a potential for just this type of flying.

Another possibility would be for the airplane to be available in kit form so that qualified persons might do much of the labor involved in manufacture. The kits might be purchased in installments or in separate units so that the outlay might be spread out over a longer time.

It seems to me that this type of flying, and perhaps gliding, offer our only hope of reviving the interest of American youth in aviation.

HAROLD D. WEATHERLY
Exeter, Mo.

Like Mr. Istvanick (FLYING Mailbox, February) I also have started my own design. I have not started construction yet. It is all wood with 20½' wings and a 15' fuselage. I want to hang a 65 hp Lycoming on it which should pull it around at about 400 lbs. weight.

I suggest that a company should run a series of kits of slow, medium and fast planes. If they can put boats into kits there is no earthly reason why they can't do the same with airplanes.

JAMES R. DAVIS
Mattison, Ill.

PATCH COLLECTOR

I am a collector of patches and insignia (cloth only) from all over the world. I have approximately 2,000 to date. I am serving in Korea and thought when I came over I would have wonderful opportunities to acquire many more, but my luck turned on me and I am in an isolated spot. I had planned on putting the collection on display as I did while serving in W.W. II in Paris and Mannheim, but I can't do that until I get located in an area more densely populated with G.I.'s.

Last night in the day room I came across a copy of FLYING and the thought came to me that maybe if I sent a notice of my plight to all patch collectors through your magazine I might reach people who would oblige by sending me patches, old, new, obsolete, WWI, etc. I will definitely be the highest moraled person in the Far East.

SGT. JOSEPH B. KIRSCHNER
RA-32793866—4th M.P. (Prov.)
APO 59, c/o P.M., San Francisco

ANNUAL FLIGHT CHECK?

Sitting around doing a little hangar flying today I got into a discussion of how many pilots practice maneuvers after acquiring a pilot's certificate or other rating.

As a pilot and operator I have found that the average pilot, regardless of his ratings or status, is inclined to be rusty and lacking in ability to execute properly eights around and eights on pylons, recovery from stalls, chandelles and lazy eights.

When checking out pilots in different aircraft it's a shame to observe the sloppy pattern flying and rank radio procedure they have acquired by not having checked themselves more frequently or by having been too proud to ride with an instructor.

I am aware that when given their ratings these pilots were quite proficient in these maneuvers and procedures.

As a suggestion, would you deem it advisable to have all pilots as well as instructors take a flight check once a year or once every two years in behalf of better and safer flying?

I personally have had myself checked out eight times in the past eight years and have found it helped me considerably. I would like to have comment pro and con on this subject, as I believe that better pilots make safer flying.

RICHARD W. BURNHAM
East Hartford, Conn.

• *The Mailbox hereby opens its columns to discussion of a proposal of considerable merit.*—ED.

TIDEWATER AC

The Aviation Club of Tidewater, Va., has been organized to provide a training program for teen age aviation enthusiasts and promote interest in aviation among future pilots. ACT will provide instruction in navigation, meteorology, engineering, fundamentals of flight, radar, radio and model building. Anyone over 14 years of age who is interested can obtain information from the undersigned.

CARL G. RICKARD
1513 Camden Ave.
Portsmouth, Va.

SOUNDING OFF FOR THE C. G.

I enjoyed your article, "Atlantic Lifeline" (FLYING, August). I am a member of the U.S. Coast Guard, on weather patrol in the North Atlantic. Although your article was short and left much to be said, it was to the point. I hope it will bring more people to realize what the Coast Guard does and is.

Many people think of the Coast Guard as a small lifeboat station or lighthouse on the beach—the "dunehoppers." They never hear of the cutters cruising for weeks within a small, imaginary circle, with the nearest land three miles straight down, for the purpose of safeguarding lives and property and to rescue those who meet with accidents.

DARRELL E. RENNEWANZ
U.S.C.G.C. Cook Inlet,
Portland, Me.

• *For more on the Coast Guard, especially its aviation function, see* FLYING for *March.*—ED.

Uranium Survey

(Continued from page 21)

the area. A month was spent in preparation. Not only were surveying engineers needed, but pack and riding horses and wranglers had to be arranged for and feed for the animals cached at the various camp sites.

When the working crew finally moved into the crevassed area, work was slow. Often a week was required to "turn" a single station. High buttes and low canyon floors were inaccessible. In four months only one township was surveyed, and the accuracy was questionable.

That was a quarter century ago. In November, 1951, Chester Lloyd, supervisor of the Topographic Division of the U. S. Geological Survey, began a new desert survey project. His crew included a dozen surveying engineers and half as many pilots and mechanics; their transportation equipment consisted of jeeps and trucks for ground travel, and three helicopters.

Three days after headquarters were set up at Moab, the 'copters were carrying men and equipment into the desert. A two-man crew was able to "turn" as many as four stations in a single day. Within two months, the area within a radius 50 miles north, west and south of Moab had been surveyed. Headquarters moved successively to Hanksville, Hite and Monument Valley. Within six months, approximately 15,000 square miles had been accurately surveyed.

Even with the use of the helicopter and other modern equipment, the Southeastern Utah surveying project will require many months more of field work. When it is completed, man will have an exact knowledge of one of the country's last frontiers. An area once termed "useless" will be ready to play a vital role in the atomic age. END

"Marbore" Finds a Job

(Continued from page 31)

war on its hands, got around to the "jet" training program at basic level, it found the industry ready to respond.

Among far-sighted moves which had been made was purchase by the Continental Aviation and Engineering Corp. of American manufacturing rights to the Marbore, a 310-lb. dry weight jet power package with a take-off thrust of 880 lbs., from Turbomeca of France. For several years Continental, with 50 years experience in the engine business, concentrated on study of and tooling up for production of the Marbore 352.

Around a pair of these engines Cessna designed the Model 318 and the combination won the Air Force competition for a twin-jet primary training model. Appearance of the jet trainer in service will follow the routine of contracts and tests.

In dimension the Cessna 318 will have a 33-foot wing span, a 27-foot length, and a height of 9 ft., 10 in.

The Marbore 352 engine consists of a single-stage centrifugal compressor, a straight-through-flow annular combustor, and single-stage axial-flow turbine. The engine is overall 54.43 in. in length and has a maximum diameter of 22.32 inches.

Performance-wise the Marbore's guaranteed rating for sea level static conditions shows a maximum continuous thrust of 700 lbs., and a pound/hour fuel consumption at this thrust of 774.

It can be anticipated that, while the low-thrust jet engine finds its first adaptation to basic military training, it will thereby indubitably drive an entering wedge into its future civil utilization. It will broaden jet experience at the grass roots level so that, eventually, the idea will permeate that jet flight does not imply superman qualifications among pilots and personal aircraft owners.

To what lowest thrust for practical use the gas turbine engine can be contrived is problematic at this stage of development. It seems not too much to expect that its application to even the lightest of single-engine aircraft may be practical.

In the meantime the utilization of the Turbomeca model by Continental and the design built around the engine by Cessna is a step of historic significance in American aviation. END

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